GAS JOURNAL

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PURCHASE TAX

INTRODUCING to the Press last Friday the effort of the British Gas Council at the *Daily Mail* Ideal Home Exhibition which opened to the public yesterday, Mr. J. R. W. Alexander took the opportunity of explaining that the Council is again making representations to the Chancellor of the Exchequer for the extension to gas water heaters of the present exemption from purchase tax of gas cookers. Our views on this have been expressed more than once and in no uncertain terms in these columns. If fuel economy is to be secured the installation of efficient apparatus should be encouraged, not in effect restricted to those able to pay the high price occasioned by heavy purchase tax. It is estimated, for example, that two-thirds of all gas water heaters are sold in the lower income groups. Moreover, women are not encouraged to return to industry and other work of national importance if they are denied reasonable opportunities for lightening their labour in the home. They need an intermittent fuel service, which cannot be conveniently or economically afforded except by properly designed appliances consuming fuel only as and when required. Next to the cooker, the water heater is the housewife's greatest boon. Purchase tax on hot water appliances is a tax on cleanliness and particularly penalises the poor. Only about half of all householders have a piped supply of hot water to the bath and 44% have no water heating appliances whatever. Less than half of all householders have a bathroom of their own. Improvement in housing amenities is not facilitated by the imposition of heavy purchase tax on appliances necessary to secure greater cleanliness and hygiene. Purchase tax on gas appliances is not consistent with the Government's enforcement of measures to secure cleanliness and hygiene in factories, shops, canteens, catering establishments, and other places. Purchase tax renders the cost involved prohibitive, particularly to the smaller trader who should be spared this addition to his overhead costs.

The manufacturers of gas water heaters have had to discharge more than 50% of their skilled workers specially trained and experienced in the manufacture of such appliances. Many of these workers have not been more usefully employed and may not return to their former occupation. This unduly penalises production and development and will render difficult the attainment of maximum output when this is demanded. One gas water heater manufacturer has had to suspend operations in a new factory which it was encouraged by the Government to set-up, owing to the inadequate demand for its appliances following the reintroduction of purchase tax. Other manufacturers may similarly be put out of business, an undesirable thing since keen competition hitherto has resulted in improved designs, low prices, and good service. It is estimated that the production of gas water heaters has decreased by two-thirds since the re-imposition of purchase tax. Production is further impeded by uncertainty as to whether the tax will be removed or increased. Undertakings are disinclined to stock and consumers will not purchase appliances in such circumstances. Efforts have been made to stimulate exports, especially of hot water heaters. It is, however, difficult to compete with manufacturers overseas if the costs of production cannot be kept low by a stable home market. Stability is not secured in an industry which has been subject to the following variations in purchase tax on, for example, gas water heaters:—October, 1945, tax of 33⅓% removed; April, 1947, tax reimposed at 66⅔%; November, 1947, tax increased to 75%; April, 1948, tax increased to 100%; June, 1948, tax reduced to 66⅔%. How can the manufacturers of gas water heaters be expected to cope with such conditions?

A QUESTION OF TASTE

TASTE is defined as the 'faculty of discerning and enjoying beauty or other excellence.' Conduct seen in the light of this faculty is said to be in good or bad taste. It is thus a somewhat elusive idea, but there are few more powerful in their influence on public or private conduct. Once a matter becomes a question of taste reason becomes powerless. The word 'discerning' should be carefully noted. 'One sees what one knows.' Taste itself will be limited by discernment. This limitation becomes of great importance in any enquiry into the extent to which the choice and design of arrangements and appliances for domestic heat supply are influenced by taste.

One is tempted at the outset to examine what is meant in this connection by a 'person of taste.' A person of taste, surely, will wish so to use all available resources as to secure for his family the maximum of healthy comfort and convenience. Naturally he will wish to secure this result with appliances which add, if possible, to the beauty of his home. And he will wish to do this without causing discomfort and inconvenience to anyone else. If he is also possessed of a knowledge of elementary science and economics, his discernment will go so far as to interest him in the efficiency of the available appliances. He will be sensitive to the impact of his choice on the economy of his country and particularly at this historic moment on that of its coal supply.

A person of taste may well doubt whether a room is pleasant to sit in, at any rate in cold weather, without some focal point of radiant heat, some body of living flame. If he is also a person of discernment he will know that it is not healthy to sit long in a room without effective ventilation. He will know, further, that the open fire burning raw bituminous coal is in the worst possible taste because it involves all the anti-social effects of the smoke nuisance on the comfort and convenience of his neighbours.

A person of taste will deem it a very low standard of comfort that tolerates an unheated bedroom and that a bedroom even more perhaps than the sitting room requires good ventilation. He will by now have been educated to the appreciation that for satisfactory home heating it is necessary to provide basic or background heating throughout

the house up to a certain temperature, 55°F., 60°F. or even 65°F. according to taste. But he may well doubt whether any of the solid fuel appliances he has seen, whether automatically fed or thermostatically controlled or not, are sufficiently free from unpleasant work to be imposed—as they generally are imposed—upon the women of his family, because, of course, the day of paid domestic service is practically gone. He may perceive that the use of gaseous fuel throughout solves the problem. He may, however, have sufficient knowledge of the organisation of the gas industry to see that all-gas heat supply, if universally adopted, would impose a difficult economic burden on the industry and that there is some doubt whether it is practicable. But he will be constrained at least to look with envy upon a system of heat supply which can relieve everybody in the household from the filthy business of ash removal, furnace-cleaning and fuel handling, and storage.

It must be admitted that for the moment some alternative systems stand higher in the public taste, and we in the gas industry must get down very seriously to this question. In the design of the house the architect tends to be the final arbiter in questions of taste. The fact that we have not convinced the architect is nowhere more clearly seen than in the absence of even one all-gas house from the experiment at Abbots Langley. Why have we so failed? Probably one reason is that so far in the vast majority of cases we have installed our appliances in existing houses built round the older heating systems. However that may be it is imperative that we should get our claims home to the architect who, for the present and for the most part, is not a bit interested in us. A difficult task. But he *must* be convinced, as he can be if we go about it with sufficient tact and vigour, that the gas-supplied kitchen, gas-heated water supply, gas-fired central (or basic) heating, and the modern gas fire can be made to fit in with the most fastidious taste in internal furnishing and decoration. And that all this can be done with a coal economy second to none, with complete emancipation from dirt and inconvenience and at a cost not higher than a person of taste and discernment should be prepared to pay for these advantages.

We must be prepared to wage open war on proposed heating systems which fall short of the best. We must be prepared to say, for instance, openly and publicly, that such examples as are shown at Abbots Langley, for the most part, show pretty poor taste in home-heating. For the moment the public is not convinced of the justice of our claims. Exhibition all-gas houses have been set-up before now—though few are examples of houses definitely planned round the heating system. It may be that we should press for a number of installations on lines as extensive as that at Abbots Langley and ensure that they get equal or even greater publicity. We shall not win on the question of taste unless we adopt very definite measures to prove that gas is in the best of taste.

THE END OF A CHAPTER

THREE of the Greater London Gas Companies have held their annual meetings in the past week and the others will follow in due course. Before nationalisation became more than a theory the main interest of such meetings lay in the operational and financial results. We are no less interested today than ever we were in the extent to which the industry is meeting the demand for gas and giving service to the consumer, but since dividends have been pegged the financial aspect has lost much of its zest, and this year in particular the meetings have taken on the air of farewell gatherings. After the end of next month only a very small number of those who are now directors will remain in any way prominently connected with the administration of the industry, and the stockholders, even if they are still sentimentally concerned with their own local gasworks, will exchange their securities for British Gas Stock which will yield them a small flat-rate return irrespective of the fortunes of any particular undertaking.

It has been made abundantly clear at the meetings so far held that the approach of the end of the chapter has in no way diminished the industry's determination to continue to give first class service to the consumer. This was particularly clear in the case of the Gas Light and Coke Company's meeting, at which Mr. Michael Milne-Watson informed the stockholders that new plant was slowly repairing the losses of the war years, though the potential demand still exceeded the Company's powers of supply. Fortunately another mild winter has enabled the Company to meet its obligations in spite of the fact that it has been called upon to supply 2.44% more gas than last year, making a total increase over 1938 of 12½%. The Governor referred to a marked improvement in the supply of new cookers and gas appliances generally, enabling the Company to supply modern cookers to meet the needs of all people moving into new homes. Hire purchase facilities have been extended, but there is not yet that free supply of gas apparatus which would enable the Company to meet an ever-increasing public demand. Inevitably Mr. Milne-Watson took a brief backward glance over the Company's 137 years' history, and those who sponsored a vote of thanks to Governor, Directors and staff—we almost wrote 'the usual vote of thanks' but this year it was more significant than usual because of the impending change—recalled with gratitude the services rendered by some of the great men of the past—Sir Corbet Woodall, Sir David Milne-Watson, Sir Francis Goodenough, Mr. Galbraith, and others.

At Croydon, where Mr. Harold Williams deputised for Mr. William Cash, who was too ill to attend on the occasion of his golden jubilee as a Director and his silver jubilee as Chairman, similar sentiments were expressed, and at Wandsworth yesterday Mr. Frank H. Jones spoke feelingly of the Company's 114 years of unbroken service to consumers. Both at Croydon and Wandsworth, the South Eastern Gas Board will take over thoroughly sound, well-planned, and efficiently staffed undertakings. Nationalisation makes the Gas Light and Coke Company into an 'area' by adding to it the Commercial and Romford Companies and eight subsidiaries previously run by the South Eastern Gas Corporation, and also the Shoeburyness (Southend-on-Sea Corporation) Gas Department. This means an addition of nearly 250,000 consumers and some 450 sq. miles, but owing to their geographical placing and the flexibility of the organisation, there should be no difficulty in operating the area as an efficient whole. Mr. Milne-Watson will remain at the head as Chairman of the North Thames Gas Board. with Mr. F. M. Birks, his present Deputy-Governor, as Deputy-Chairman.

INCREASED GAS SALES IN AMERICA

From the Bureau of Statistics of the American Gas Association we have received the figures for the sales of gas in America for the year ended Dec. 31, 1948. Total sales for this period reached 32,533 mill. therms, an impressive increase of 9.1% over the same period in 1947. Some 2,347,858 therms of manufactured gas were sold, against 2,292,053 therms the previous year, an increase of 2.4%. Against this, sales of mixed gas decreased by 16.2% from 1,479,793 therms in 1947 to 1,240,609 therms last year, resulting from the change-over of several large undertakings from the distribution of mixed gas to natural gas and reflected in a gain of 11.1% in natural gas sales for this period.

COAL PRODUCTION

Coal production for the week ended Feb. 19 showed a decrease of 14,100 tons on the previous week's output of 4,310,400 tons. Output of deep-mined coal declined by 19,700 tons, as against an increase of 13,900 tons in open-cast production. In the week ended Feb. 12 the number of shifts worked, both overall and by face workers, showed a slight decrease on the previous week's

figure, but output per manshift at the coal face rose from 2.98 tons in the previous week to 3.02 tons and output per manshift overall rose from 1.15 tons to 1.16 tons. This represents an increase of 3¼% over the corresponding week last year. Both voluntary and involuntary absenteeism increased during the week from 7.22% to 7.42% and from 7.74% to 7.99% respectively among face workers, and among all workers from 5.61% to 5.86% and from 6.86% to 7.14% respectively.

GAS AT THE IDEAL HOME

No fewer than 750,000 people visited the stand of the British Gas Council at the Ideal Home Exhibition at Olympia last year, when, it will be recalled, the theme of the exhibit was the 'Seven Ages of Woman.' How to repeat such a success must have occasioned a great deal of thought and effort, but with the display at this year's Exhibition, which opened yesterday, the Council has once again scored a winning hit. The *motif* this year is 'Alice in Thermland'—seven tableaux representing Alice, the Mad Hatter, the March Hare, and other characters in new adventures with the latest gas appliances. Shown separately is a comprehensive range of the newest gas equipment for use in the home. There is also a comprehensive selection of gas appliances in the 'Homes of the Future.' We shall describe this year's Exhibition in a subsequent issue.

INDIVIDUAL FREEDOM

Speaking on 'The Effect of Nationalisation on the Life of the Nation' at a luncheon given by the Society for Individual Freedom in London on Feb. 24, Commander Hyde C. Burton, R.N., F.C.A., Director of Brighton, Hove and Worthing Gas Company, said: 'There is going to be in future, whether in gas, electricity, coal, or finance, only one employer—the one omnipotent State, an impersonal employer.' Referring to nationalisation as 'the greatest menace of our times,' Commander Burton said that the trade unions of the nationalised industries had a choice to make as to which master they would serve. The position of such unions, he argued, is that if they wish to bid for special favours, and choose to employ the method of a legal strike, they will call down upon themselves the whole machinery of the State. Today a man who is employed in a nationalised industry must compulsorily join a trade union, said Commander Burton, and what is more, a particular union. Far better was it for the trade unions to return to the old position under capitalism where they represented the workers as a bridge between them and the employers, rather than to act as the slave-drivers and production-getters of the State.

Obituary

The death occurred on Feb. 8 of Mr. FRANCIS SULLY, Deputy Chairman of the Romford Gas Company. Mr. Sully, who was 78 years of age and, up to within a short time of his death, was a remarkably active man, had been a Director of the Company for more than 30 years. He was High Bailiff and Sergeant-at-Mace of the Mayor's and City of London Court from 1903 to 1939, a Past-President of the Royal Society of St. George and a Past-Master of the Worshipful Company of Needlemakers and Guild of Freemen. He was also a Fellow of the Chartered Institute of Secretaries.

Lewis Fletcher

AN APPRECIATION

Mr. LEWIS FLETCHER, whose sudden death from heart failure has caused great grief to his large circle of friends, had been the Scottish representative of the Parkinson Stove Company for 26 years and was the doyen of the Scottish representatives. Affectionately known as 'Lewie' to everyone, he found his greatest pleasure in sacrificing himself to help his fellows and of him it can well be said that he lived not for himself but to serve and make other people happy. Before joining the Parkinson Stove Company, he had been showroom manager to the Glasgow Corporation Gas Department and was therefore thoroughly conversant with both the stove manufacturers' and gas salesmen's sides of the industry. His advice on points regarding the suitability of appliances and the utilisation of gas was therefore of value and, freely given, could be depended on always to be sound and completely practical. Whatever he took in hand to do, he did thoroughly. Never content with second best, he applied all his powers to ensure that performance was finished in every right sense of the word. Of his kindly nature, honesty, and sincerity, it is impossible to speak too highly. In him, there was no spark of envy nor malice. He had that gift of being interested in what interested his friends and appeared to be able to discover only the good in people. He made friends readily and the friendships, based on real liking and respect, remained constant. A past Captain of the Hilton Park Golf Club and Vice-Captain of the North British Association of Gas Managers Golf Circle, he had a great enthusiasm for the game and it was typical of his desire for perfection in all things that even in his 69th year, he was assiduous in trying to improve his skill. He is gone from among us, but recollections of a kind and wholesome personality will keep his memory green.—'F'

Personal

Mr. JOHN R. TAYLOR, of the Hexham Gas Company, Northumberland, has been appointed a superintendent engineer at the Elswick Gasworks of the Newcastle-on-Tyne and Gateshead Gas Company.

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After 50 years with the Newcastle-on-Tyne and Gateshead Gas Company, Mr. E. DELAFIELD BROWN, Rental Superintendent for 23 years, has retired. He began with the Company as an office boy in 1899.

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Mr. WALTER DUNLOP, Bank Place, Auchterarder, has been appointed Technical Assistant to Motherwell & Wishaw Gas Department. His grandfather was superintendent at Kirkcaldy Gasworks and afterwards Manager at Cardenden, Fife.

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Mr. LESLIE G. ROBERTS, Engineering Assistant at Halifax, has been appointed Deputy Engineer of the Southport Corporation Gas Department in succession to Mr. P. SUMNER, who has secured an appointment with the Leeds Corporation Gas Department.

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Mr. J. S. BIRD, Engineer and Manager of the Bromsgrove Gas Light and Coke Company, has been appointed Engineer, Manager, and Secretary of the Martock Gas Consumers' Company. Mr. F. J. EDMONDS, Regional Gas Officer, Ministry of Fuel and Power, Midland Area, has been appointed Engineer and Manager at Bromsgrove.

GAS BOARD APPOINTMENT

Mr. H. JOHNSTON, M.INST.GAS E., M.I.MECH.E., Engineer and Manager of the Bradford Corporation Gas Department, has been appointed Chief Engineer of the North Eastern Gas Board. Mr. Johnston commenced his career on the contracting side of the gas industry, being eight years with West's Gas Improvement Company, Ltd. In 1925 he entered the service of the Blackpool Gas Department as Chief Draughtsman, afterwards becoming Chief Engineering and Technical Assistant, a post specially created to deal with new works and projects, including the initiation of a scheme to construct an entirely new works outside the town.

In 1935 he was appointed Deputy Engineer and Manager of the Bradford Gas Department and early in 1949 he was promoted Engineer and Manager at Bradford, following the appointment of Mr. G. E. Currier to the Deputy Chairmanship of the North Eastern Gas Board.

1949 "JOURNAL" DIRECTORY

In order to keep the Directory information up to date, the following alterations and corrections which have been notified during the past month should be noted in the 1949 issue of the *Gas Journal Calendar and Directory:*

Page 14.—BRADFORD.—C. A. Newham, *Dep. E. & M.*

„ 32.—GAS LIGHT AND COKE COMPANY.—D. S. Gooch, *Staff Controller*, becomes *Controller of Services*. R. N. B. D. Bruce, O.B.E., T.D., *Controller of Industrial Relations*, becomes, in addition, *Staff Controller*.

„ 48.—LYDNEY.—We were in error last month in announcing the appointment of C. Reid as *M*. H. W. Castleton remains *E & M*, C. Reid having been appointed *Maintenance Engineer*.

„ 52.—NEWCASTLE-UPON-TYNE.—E. Crowther. *GM & CE* resigned; J. E. White, *Acting GM*.

„ 92.—INVERBERVIE, &c.—The names of the officials (in the fifth column) of all the undertakings from Inverbervie to bottom of page (Refs. 9 to 34) are out of alignment. They should be raised throughout by one line, so that 'C. Milne, *M*; J. Geddes, *S* relates to Inverbervie' and so forth down to 'J. Dickson, *E & M*' at Kirkintilloch.

„ 92.—KENNOWAY.—C. R. Trotter, *E & M* (instead of *M*).

„ 164.—GAS RESEARCH BOARD.—Headquarters: The Abbey, Southend Road, Beckenham, Kent. T/N Beckenham 5014/6. Registered Office: Gas Industry House, 1, Grosvenor Place, London, S.W.1. T/N Sloane 8266.

I.G.E. BUILDING FUND

The House Appeal Committee of the Institution of Gas Engineers has published in the March Bulletin of the Institution the first list of contributors to the Building Fund for the acquisition by the Institution of new headquarters premises, together with a note of the total sums contributed respectively by members, gas undertakings, and member firms of the Society of British Gas Industries.

In a foreword to the list, Dr. Harold Hartley, Chairman of the Committee, says: 'The Committee is very appreciative of the wide and generous response to its letters of appeal, and it considers that the target set therein has now practically been achieved. It desires to take this opportunity of expressing to all contributors, large and small, its grateful thanks for their ready co-operation.

'There is still, however, a considerable number of members who have not responded and the Committee now appeals to them for the last time to join in support of their Institution by making some contribution, however small, to the Fund. For this purpose, the list of contributors to the appeal will remain open until Mar. 31, and a supplementary and final list, giving the names only of contributors, will be published immediately afterwards.

'The Building Fund itself will remain open indefinitely after Mar. 31, and contributions to it will always be welcomed and acknowledged gratefully, but no further lists of contributors will be published.

'Negotiations for the purchase of suitable premises quite near to Gas Industry House are virtually complete. As soon as they are concluded a full report will be issued of the building itself, of the accommodation it will provide for the administration of the Institution, and of the social amenities it will offer to members.'

The following is the note on the total sums contributed:

Contributions (up to and including Feb. 22, 1949)

	Total Received and Promised	
	Excluding Tax Recoverable on Deeds of Covenant	Including Tax Recoverable on Deeds of Covenant at Present Rates of Tax
(*a*) Members	£6,469	£10,183
(b) Gas Undertakings	76,192	76,229
(c) Member Firms of the Society of British Gas Industries	13,831	24,613
	£96,492	£111,025

Diary

Mar. 3.—**Midland Junior Gas Association:** Evening visit to the works of Brotherton & Co., Ltd., Birmingham.

Mar. 4.—**Scottish Junior Gas Association:** Joint Meeting of Eastern and Western Districts in Glasgow. Address by F. M. Birks (Junior Vice-President, Institution of Gas Engineers).

Mar. 4.—**Northern Junior Gas Association:** Meeting, Grand Hotel, West Hartlepool. Paper by C. E. Hammond (Crossweller and Co., Ltd.), on "Some Practical Aspects of the Use and Installation of Instruments in the Gas Industry."

Mar. 8.—**National Federation of Gas Coke Associations:** General Committee, Gas Industry House, 10 a.m.

Mar. 9.—**B.G.C. Domestic Development Committee:** Gas Industry House, 2.30 p.m.

Mar. 9.—**B.G.C. Technical Sub-Committee:** Gas Industry House, 10.30 a.m.

Mar. 9.—**Eastern Junior Gas Association:** Visit to Bury St. Edmunds Gas Company. "Some Thoughts on Education in the Gas Industry," E. H. Winch. "Public Relations in the Gas Industry," R. W. Hilham.

Mar. 11.—**London and Southern Junior Gas Association:** "Dust Problems in Gasworks Practice," A. J. S. Wiseman. Gas Industry House, 7 p.m.

Mar. 12.—**Manchester District Junior Association of Gas Engineers:** Jubilee Dinner. Engineers Club, Albert Square, Manchester.

Mar. 15.—**Midland Junior Gas Association:** "Carburetted Water Gas," S. C. Crathorn.

Mar. 16.—**Yorkshire Junior Gas Association:** President's Day at Huddersfield. Visit to Leeds Road Gas-Works, and visit to Hopkinsons, Ltd.

Mar. 17.—**Midland Association of Gas Engineers and Managers:** Annual General Meeting. Queen's Hotel, Birmingham, 3 p.m., preceded by luncheon, 1 p.m. for 1.30 p.m.

Mar. 23.—**London and Southern Junior Gas Association:** Visits to Electrolux, Ltd., and to George Kent, Ltd., Luton.

Mar. 25.—**North British Association of Gas Managers:** Spring Meeting, Edinburgh.

Mar. 23.—**Western Junior Gas Association:** Visit to Old Mills Colliery, Paulton.

News in Brief

Sanction has been Received by Darlington Gas Committee to borrow £17,500 for the supply of gas meters and appliances.

Mr. F. Wilson, Engineer and Manager, presided at the annual supper of the Darlington Gasworks Sports Club, on Feb. 23. The guests included Alderman J. D. Hinks, Chairman of the Gas and Water Committee, and Mrs. Hinks, and Mr. A. E. Ruffhead, former Manager.

The Staff of the Blackpool Gas Department held their third annual dinner and dance on Feb. 25. Mr. T. R. Cook, Engineer and General Manager, presided at the dinner at which from 70 to 80 guests attended, including several members of the Gas Committee. Dancing followed with Mr. P. Gaggs as M.C.

As From Friday, Mar. 4, the Registered Office of the British Sulphate of Ammonia Federation will be transferred to the following address: Victoria Station House, Victoria Street, London, S.W.1; Telephone Nos. Victoria 1953-4-5. All correspondence at present being addressed to the Secretarial and Accounts Department at Windsor House, Victoria Street, London, S.W.1, should be addressed accordingly.

The Alliance and Dublin Consumers' Gas Company has announced a further cut of 1d. per therm in the price of gas, effective from Jan. 1 this year. During 1945 the price was reduced by 3d. a therm. With the reduction in price now announced, the relief to consumers will approximate £250,000 a year. The price of Dublin Gas £1 Ordinary stock units in the Dublin Stock Exchange rose by 3d. per share when the announcement was made.

A Meeting of the British Gas Council Home Service Discussion Group (London District) will be held at the Gas Light and Coke Company's Demonstration Theatre, 178, Edgware Road, W.2, at 6 p.m., on Mar. 11. Miss G. Chappel, M.Sc., Lecturer at King's College of Household and Social Science, will speak on research being carried out on the nutritive value of food cooked in pressure cookers. Miss J. Houghton, of the Research Kitchen, Watson House, will give a practical demonstration on "The Use of Pressure Pans." Home service advisers may invite guests to this meeting. No doubt domestic science teachers would be interested in the subject.

Middlesbrough Corporation has accepted the tender of Whessoe, Ltd., Darlington, for the supply, delivery and erection of an electrostatic detarring plant at the gasworks.

Gas Main Extensions are to be carried out by the Darlington Corporation Gas Department on the Clarence Farm housing site and in Atkinson Road and Longfield Road, Darlington, and application is being made to borrow £11,700 to cover the cost of the work.

The Gas Light and Coke Company and the Army and Navy Stores have arranged for a Home Service Advice Bureau in the latter's premises, in Victoria Street, London. In addition to giving advice on home matters, the Company's Home Service Advisers also give short cookery demonstrations which are proving popular. The Bureau will remain open indefinitely.

It is the Policy of the Liverpool Gas Company to encourage the office staff to sit for the examinations of the secretarial and accountancy bodies, and a Students' Union has been formed among the staff for mutual assistance in preparation. This system bore good fruit at the recent examinations of the Chartered Institute of Secretaries when three of the staff passed the final examination and two the Intermediate—five successes out of eight entrants.

The Cookery Classes for Men arranged by the York, Harrogate, and District Group of Gas Companies, were the subject of an interesting "Roundabout" broadcast in the Home Service on Feb. 1. The feature was based on a recording by the B.B.C. mobile unit and included extracts from instructions being given by Miss Brown, the Group's Home Service Adviser, and an interview by Mr. Stanley Williamson, of the B.B.C. staff, with one of the pupils.

Gas-Ignited, Smokeless Fuel Fireplaces are to replace old-type Yorkshire ranges at Bradford, if a recommendation of a special sub-committee is approved by the Housing Committee. Gas cookers will be installed and the rent increased to 8% of the cost of installation. New fireplace boilers will be fitted when the new fireplaces are fixed. Tenants will be permitted to put in smokeless fuel type fireplaces at their own expense, it being a condition of tenancy that smokeless fuel only be used.

SOUTHERN ASSOCIATION (EASTERN DISTRICT)

A meeting of the Southern Association of Gas Engineers and Managers (Eastern District) was held at Gas Industry House on Feb. 22, presided over by Mr. W. K. Tate, Chairman of the District. It was announced that the following officers had been nominated for election for the session commencing on July 1: Chairman (Eastern District), Lieut.-Colonel J. A. Gould (South Suburban Gas Company); Vice-Chairman, Dr. A. E. Haffner (Gas Light and Coke Company); Hon. Secretary and Treasurer, J. M. Webber (Croydon Gas Company); District representatives on the Council of the main Association, L. Muir Wilson (South Metropolitan Gas Company), J. H. Hornby (Hastings and St. Leonards Gas Company), and Dr. J. Burns (Gas Light and Coke Company) (in place of Lieut.-Colonel Gould, G. H. Kenyon, and H. W. Moys, who retire in rotation); Eastern District Committee, C. R. M. Croft (Wandsworth), R. Prince (Brighton), L. C. S. Poulter (Gas Light and Coke Company), W. A. Evetts (Watford), F. White (Gas Light and Coke Company), and A. H. Savill (Wandsworth).

The **Chairman** said it was probably known to many members that discussions had been proceeding within the Institution of Gas Engineers and between the Institution and the District Associations as to the future standing of the District Associations. It had been suggested by Mr. H. J. Escreet, who recently completed his Presidency of the Southern Association and Chairmanship of the Eastern District, that there would be added strength both to the Institution and the Association if in some way the links between them could be made very much stronger. In effect, it was now suggested that the Southern Association and all the other District Associations throughout the country should become District Sections of the Institution of Gas Engineers. A certain amount of misgiving had been felt in many quarters as to the future of the Institution under nationalization, and even more so as to the future of the District Associations. Ownership of the industry would be different, and everything would inevitably be much more centralized, and it seemed to representatives on the Council of the Institution and members of the Association's own Council that there would be more hope of survival for them if they could be linked with the Institution, and that at the same time added strength would be given to the Institution.

There were important matters to be considered in connexion with any such proposal, the first of which was the eligibility of all the members of the District Association for some form of membership of the Institution. If the Association were to become a District Section of the Institution, a prerequisite of membership would be membership, in some category, of the Institution. Another difficult problem was the question of finance; whether there should be an increased subscription to the Institution, a portion of which would come back to the District Section for operational purposes, or whether the District would continue to collect its own particular subscription. The Committee had considered the whole matter at length earlier in the day and had decided to recommend to all the members of the Eastern District that application should in due time be made to the Institution for affiliation in the form of a District Section, subject to satisfactory agreement on the terms and conditions of such an arrangement. The matter would come before the Eastern District in March, and in the meantime it was proposed to circulate if possible a resumé of the Institution Council's recent discussion of the matter. They would at the same time circulate a copy of a resolution which the Committee had prepared for submission to the March meeting. He confessed that when the matter was first raised about 12 months ago he was not very much in favour of the change, but as things were developing he had realized that unless they did something of this kind there was grave danger of their Association passing out of existence, and once that happened it would be almost impossible to start again. If they established this linkage there was every prospect of their continuing in being; indeed it had been unofficially agreed, according to some remarks that the Chairman of the Gas Council had made recently, that there was a real need for the continued activity of the Institution. The whole picture needed tidying up and this was one of the ways to do it.

Mr. **F. A. Cheeseman**, Sales Manager of the Wandsworth and District Gas Company, then presented a paper on "The Evolution of the Gas Showroom," a summary of which, together with some notes on the discussion, will be published in a later issue of the *Journal*.

The Stella Gill Coke Ovens belonging to the Northern Divisional Coal Board have been restarted after being out of commission for several months for repairs and reconstruction. The works are the main source of supply of gas to Durham City. The restarting of the ovens was carried out by Alderman W. Goodyear, Vice-Chairman of the Durham Gas Company, who congratulated the N.C.B. on the expeditious way the reconstruction work had been carried out.

SHEFFIELD GAS COMPANY'S BIG DEVELOPMENT SCHEMES

Work on important sections of a scheme to add about 30 mill. cu.ft. a day to gas making capacity has been started by Sheffield and District Gas Company. The extensions, to cost about £2 mill., will provide not only for extra gas making to serve the expanding needs of industry, but for a big range of ancillary operations, including benzole extraction. Schemes in progress or projected concern all four gas-works in Sheffield, and works at Barnsley, Woodhouse, Elsecar, and Matlock. The Company supplies gas through 1,400 miles of mains to an area of approximately 500 sq. miles.

Chief developments are at the Neepsend and Grimesthorpe Works, in Sheffield, where new gas-producing plants are to be installed. In the carbonizing process at the Grimesthorpe Gas-Works, surplus steam will be made and this will be used for the generation of electricity. A turbo alternator is being installed for this purpose. The Gas Company are themselves large users of electricity, but it is hoped to make arrangements with the British Electricity Authority to take any surplus current generated on the Company's works to supplement their supply, when not required by the Gas Company at their periods of low power consumption.

For Neepsend two sets of carburetted water gas plant, each of 4,750,000 cu.ft. daily capacity, have been ordered. The erection of tower purifiers, in two sections, each capable of purifying 12 mill. cu. ft. a day, has started. This will be the largest single gas purifying unit in the country. Tenders have been invited for a new 5 mill. cu.ft. gasholder to be erected at Neepsend.

Also on order are an oxide handling plant for the new tower purifiers, river water screening plant, water treatment, and a gas oil tank. New washing and messing accommodation are contemplated.

Transformation at Grimesthorpe

Extensions at Grimesthorpe will transform the appearance of the works, where demolition to make room for new plant has been started. The scheme under development here is for the installation of intermittent vertical chambers in two sections, eventually having a total maximum capacity of 20 mill. cu.ft. a day. The scope of the Grimesthorpe extensions is indicated by the ancillary plant included in the contract.

This will provide for the installation of external producers and plant for coal unloading, stocking, reclaiming, breaking and handling, gas condensing and cooling, by-products and benzole extraction. Coal stocking capacity will be 25,000 to 30,000 tons; coal carbonized per day, approximately 1,000 tons; benzole extraction will be 3,000 gal. per day.

New purification plant necessary at Grimesthorpe and Meadow Hall will give an eventual capacity at Grimesthorpe of 24 mill. cu.ft. of coal gas a day, and at Meadow Hall an extra 5 mill. cu.ft. a day. A new electrically-driven compressor, with a capacity of 300,000 cu.ft. an hour will come into service later this year. It is proposed to build an 8 mill. cu.ft. gasholder at Meadow Hall, and other gasholders at Barnsley (2 mill. cu.ft.) and at Woodhouse (250,000 cu.ft.).

Another project is for a wet purification plant, of 4 mill. cu.ft. capacity a day, at the Effingham Street Works, Sheffield.

Details of other work in the Company's area are:—Barnsley: A new gas booster installation will be put into commission later this year. Major repairs are scheduled for one of the purifier sections in the summer.

Elsecar: A set of purifiers, with a capacity of 400,000 cu.ft. a day, should be in operation in the spring.

Matlock: A new gasholder, capacity 150,000 cu.ft., is nearing completion. A carburetted water gas plant to replace the existing retort is on order.

AUTOMATIC LAUNDRY

The first automatic laundry on the American pattern in Scotland, which began operation on Feb. 7, uses three Multipoint Ascot NEA 32/6 gas water heaters, providing instantaneous hot water to a battery of six washing machines. The heaters are mounted on the operating wall above the machines, each heater servicing two machines. The decision to use gas heating was dictated largely by the necessities of the new system.

Operated extensively in the U.S.A., the automatic laundry shop caters for housewives who have not the facilities, the time or the desire to do heavy household washing. For a given price—2s. per 8 lb. dry wash—the automatic laundry takes the wash and gives it a personal washing machine, thereby avoiding the danger of mixing the garments or of contamination. The customer is given an approximate time of completion, when she returns to collect her wash. No finishing work is done, and the owner takes the washed garments, almost dry, for ironing. The system demands a continuous and cheap supply of hot water, and for this purpose gas proved to be most satisfactory in terms of economy and efficiency.

COMMERCIAL AND INDUSTRIAL UTILIZATION OF GAS: NO. 9

By F. DICKINSON, M.Inst. F.,
Industrial Gas Engineer, Newcastle and Gateshead Gas Company

(*Continued from page* 412)

HOT WATER AND STEAM

Water

As we have to deal with water as a common denominator under the above heading in the forms of hot water for washing and other purposes, boiling water for tea-making, &c., and steam for heating and process work, it is desirable to consider first the basic material. Water, which is a compound of hydrogen and oxygen (H_2O), never occurs in nature in a pure state, the nearest approach being rain-water after a steady downfall. Even so it absorbs a considerable amount of carbonic acid gas from the atmosphere which increases its solvent action, particularly on calcium carbonate (carbonate of lime), which occurs abundantly in the crust of the earth in the form of limestone chalk, &c. Although this is only slightly soluble in pure water it dissolves to an appreciable extent in water containing carbonic acid, so that rain-water percolating through soil and rock strata becomes charged with calcium carbonate held in solution by the carbonic acid in the form of calcium bicarbonate —*i.e.*, $CaH_2(CO_3)_2$. In similar circumstances water may also take up magnesium carbonate to be held in solution as magnesium bicarbonate—*i.e.*, $Mg\ H_2(CO_3)_2$. Without the aid of carbonic acid it is also able to take into solution such compounds as the sulphates, chlorides, and nitrates of lime and magnesia. The soluble salts present in water may be divided into two classes:—

(1) Salts which are permanently soluble and can only be removed by chemical means or distillation of the water.
(2) Salts which decompose when heated to form insoluble salts which are then deposited.

The former are: the chlorides of calcium, potassium, sodium, and magnesium; the sulphates of potassium, sodium, and magnesium; and the nitrates of calcium, sodium, and magnesium. These are generally considered as non-scale forming, but magnesium salts are objectionable, particularly with water under pressure, where magnesium chloride can react to magnesium hydroxide and hydrochloric acid be formed.

The latter rapidly form insoluble deposits of scale upon the heating surfaces, retarding the flow of heat and leading to overheating and weakening of the metal. The sulphates, carbonates, and bicarbonates of calcium and magnesium fall into this class, causing the so-called "hardness" of water, having the property of forming insoluble salts with a soap which has an alkaline base, so that the hardness of a water is a guide to its scale forming properties. A water with a low-degree of hardness is termed a "soft" water.

Hardness which can be removed by boiling is called "temporary" or "carbonate" hardness. Calcium bicarbonate is the principal salt responsible for this, being decomposed by heat to calcium carbonate, which is almost insoluble in water. This reaction commences about 140°F, and is accelerated at higher temperatures. "Permanent or sulphate hardness" is due to salts in solution which are unaffected by heating to boiling point —*i.e.*, 212°F. The most important salt is calcium sulphate, which, with other similar salts, can only be removed as indicated in Item No. 1, above.

The Total Hardness figure is the addition of the Temporary and the Permanent Hardness figures. These vary widely as shown by the following statistics:—

Bradford, Yorks	0.5 T.H. +	2.0 P.H. =	2.5 total H.
Newcastle-on-Tyne	12.0 T.H. +	6.75 P.H. =	18.75 total H.
Hartlepool	28.6 T.H. +	29.4 P.H. =	58.0 total H.

The usual form of designation is as follows:—

Soft waters	Up to 6 degress of total hardness
Medium hard waters	6 to 13 degrees of total hardness
Hard waters	Over 13 degrees of total hardness

(N.B.—The above degrees are to Clark's scale, where one degree of hardness is equivalent to one grain of calcium carbonate per imperial gallon. To convert to parts per 100,000 it is necessary to multiply by a factor of 1.43.)

In hard water districts normal hot water and boiling water appliances soon become heavily "furred-up," and it is very difficult to de-scale the surfaces back to the original bare metal, so that subsequent scaling is comparatively rapid, with high maintenance costs. There are now on the market small scale-reducing units which can be inserted in the feed pipe to the appliances, and which only require a new descaling cartridge fitting about once per annum for normal domestic water usage. The units are made in two sizes at very reasonable prices, and the spare filter cartridges cost only a few shillings each. District tests over a full year have shown them to be very effective.

Care has also to be exercised with water supplies carrying quantities of peat and other vegetable matter, and where the water is acidic in nature this can lead to corrosion in iron, copper, and lead pipes. In general, however, acidic water is treated appropriately at the storage reservoirs, and this trouble is minimized. Prevention of attack from inherent oxygen can be assisted by the development of a protective coating on the metal surfaces by the scale formed from the included calcium carbonate content of the water, formed at ordinary temperatures up to boiling point, always granted that this results in a thin scale only and is not allowed to develop into an excessive deposit. The water should thus be saturated with calcium carbonate when a protective coating, with or without rust, will be maintained. If under-saturated corrosion may occur without any calcium carbonate being deposited, and the only layer then formed would be an oxide of iron which does not inhibit further corrosion. The alkalinity is taken as the combined carbonic acid, which is combined with calcium, magnesium, sodium, iron, and manganese, if present, and is the factor which affects the solubility equilibrium of the calcium carbonate. The free CO_2 in the water also affects this, and is used to maintain balance with the calcium carbonate content of a water supply.

Hot Water Applications

Throughout the whole range of commercial and industrial workshops and factories there is a demand for hot water in each of the individual premises. The amount of water may vary quantitatively from the occasional demand for one wash basin to bulk demand for a swimming pool, with appropriate plant to meet the requirements. Essentially it is a comparatively easy matter to deal with, once the relative operational data has been established, as the maximum water temperature is below steaming point, say 190°-200°F, and there are few complications in either layout or application. An obvious point to watch is the local water condition, "hard" or "soft," and to advocate suitable appliances. Local bye-laws must be observed in respect of the use of mains pressure direct on to appliances, and where a limited head of water only is available for the operation of diaphragm-controlled gas burners it is necessary to employ appropriately designed heating units which will give the maximum heat input upon demand under such working conditions.

When the requirements are small, say for one or two hand basins once or twice per day, they can be met with normal domestic instantaneous or storage appliances, but if there is a peak demand for a number of basins for a short period only it is advisable to install a lagged storage cylinder fed by a comparatively small appliance capable of adequate recovery in the non-demand periods. This should also be capable of meeting other normal hot water requirements for washing purposes. An allowance of one gallon of water at 140°F per person for each occasion should be adequate.

In the case of kitchens and canteens it is necessary to have an ample supply of hot water available at about 140°F for normal purposes, but for the washing of dishes a temperature of 180°-190°F. is essential both for satisfactory cleansing and for self-drying of the cleaned articles. As there is a heavy peak demand here this must be covered by ample storage and recovery facilities, and there are storage sets available which meet this successfully. The evaluation of the hot water demand for canteen purposes is somewhat difficult, but a figure of one-third of a gallon per person for main meals, with a similar rate of recovery, is considered to be adequate.

Another case of heavy peak demand is the hotel bath load, where an allowance of 15 gallons of water at 140°F must be allowed per bath to give 110°F at the mixture outlet spout for 105°F in the bath, representing 30 gallons of water in the bath at that temperature, which is considered to be a medium quantity. On a basis of one bath in each period of 15 minutes it would probably be safer to calculate on 20 gallons at 140°F per person, and this must be divided between storage and recovery capacity for a two-hour maximum-demand period. This, of course, is additional to normal service demands. Boarding houses and blocks of flats should be treated similarly.

An occasional heavy load is that of sports pavilions where a large plunge bath and numerous showers may be in full operation for a short period. This can only be met by ample storage of the order of about 600 gallons capacity at 140°F. The

showers should have automatic mixing valves to ensure that no higher outlet temperature than 100°F. can be obtained.

Public wash houses require considerable quantities of hot water, and this is usually obtained from steam heated calorifer units for rinsing purposes, while steam is used for the boiling sinks. This has obtained for many years because wash houses were normally linked with swimming pools where large steam boilers were used for laundry demands and pool heating. Under present-day conditions the wash houses are frequently sited away from swimming pools, and so require independent plant for hot water production. It may, therefore, be more economical to install hot water units to give an ample supply at 140°-160°F., and arrange for the boiling sinks to have gas burners underneath to lift the hot water to boiling point. Alternatively, one or more smaller steam boilers can be installed for topping-up purposes, and these could be of the automatically controlled gas-fired types.

Swimming pools are dealt with in an appendix to this section, partly because they require specialized treatment, and also as an indication of the type of informative article or lecture that may be requested from either student or gas load development angles.

We have already dealt with industrial applications where tanks or vats holding water at temperatures from 80°-180°F. are used for process work. Small tanks are usually heated by bar burners placed beneath the tanks, others are heated by steam coils immersed in the water at low level. Where steam is not available it is possible to obtain standard units with 2 in.-4 in. bore immersion coils into which gas flames are projected from natural draught injectors, the hot gases making two passes along the bottom of the tank before being discharged up a vertical flue pipe terminating above breathing level. These units are simple, flexible, efficient, and lend themselves to automatic temperature control. Large water vats such as those used in breweries are usually heated by blowing live steam into the water. This is simple, as there is usually plenty of steam to hand, but unless care is exercised it can be very wasteful of steam. Medium and small bottling premises use small tanks for bottle washing. The hot water is supplied from a small circulating hot water boiler, but a strum-box or filter is necessary at the outlet of the tank to the return pipe to prevent the washed-off labels entering the boiler.

Hot Water Units

These are all of standard design by well-known manufacturers and require little or no detailed description. They range from circulators, instantaneous and storage units, and small hot water boilers such as those made by John Wright, Ideal Boilers, Ltd., and Thos. Potterton, Ltd., to the large boilers made by Cochrans, Ltd., Autocontrol Boilers, Ltd., Town Gas Boilers, Ltd., and Spencer-Bonecourt, Ltd. The large units can be either of the horizontal or the vertical type as desired, and all units have automatic controls included as standard equipment. As the medium and larger sizes of hot water boilers are used more extensively for space-heating purposes it is proposed to deal with them under that heading.

Boiling Water Applications

The best known commercial application for boiling water is for the making of tea or coffee, as distinct from cooking operations where water is brought to boiling point—*i.e.*, the cooking of eggs, puddings and vegetables. The simple water-boiling unit is the copper urn with a gas ring below, which can be obtained in standard sizes from 3-10 gall. capacities. Meat and soup boilers with cast iron pans run from 10-40 gall. capacities, and vegetable boilers from 20-60 gall. capacities. Most urns and boilers of this type have heat input rates which will bring water to the boil in about one hour from cold, and while this will meet short-period maximum demand loads the recovery is slow so that care must be taken when estimating for demands to avoid cessation of boiling water delivery through insufficient total capacity.

In some shipyards where there is a considerable peak demand for filling tea-cans within the first ten minutes of a fixed meal hour, this is met by the installation of several large copper boilers with outlet manifolds having a number of draw-off taps and one master tap. The water is brought to boiling point in readiness for the demand, when the master tap is opened and the men can fill their cans rapidly.

The modern amenity of trolley tea service in factories twice per day has created another high peak rapid service demand which calls for some thought and expense in original layout to give satisfaction and is usually operated by combined schemes of boiling water units and insulated urns containing tea made prior to the rush period, but there are limitations on the standing time of pre-brewed tea if full flavour is to be maintained. Failure to observe the last point would cause dissatisfaction, with consequent reluctance by operatives to buy mugs of tea, and disruption of the economics of the tea stations.

For the intermittent demand of cafes, restaurants, hotels, and canteens there is a wide range of instantaneous boiling water units which are capable of meeting all except abnormal demands, and there is rarely any difficulty in catering for these.

In industry there may be occasional process demands for boiling water, but this is not general except in public wash houses and laundries, and all such can be dealt with as separate entities.

Useful Hot Water Data

(a) *Temperature of water required for various purposes.*

Hot bath	98° to 105 ° F. for adults and 100° F. for children
Warm bath	92° to 98° F.
Tepid bath	85° to 92° F.
Swimming pool	65° F. for open pool to 76° F. for closed pool
Wash basins	85° to 105° F.
Shower baths	80° to 90° F.
Kitchen sinks	140° to 150° F.
Dish washing machines	140° F.
Rinsing dishes	180° F. to 190° F.
Industrial uses	Up to 212° F.

(b) *Quantity of water required for various domestic uses.*

Baths (standard 5 ft. 6 in. long) :	
Small quantity	10 gall. at 150° F. (20 gall. at 105° F.)
Medium	15 gall. at 150° F. (30 gall. at 105° F.)
Large	20 gall. at 150° F. (40 gall. at 105° F.)
Baths (larger than standard type)	25 gall. at 150° F. (50 gall. at 105° F.)
Hand or wash basin	1 to 2 gall. at 150° F.
Kitchen sink	2 to 4 gall. at 150° F.

(c) *Quantity of water required for baths and wash basins in boarding houses, schools, hotels, public lavatories, &c.*

Baths	50 gall. each per hour at 140° F.
Hand or wash basins :	
Bedrooms	5 gall. each per hour at 140° F.
Public	15 gall. each per hour at 140° F.

(d) *Quantity of water required for various purposes* (140° *F.*)

Baths :	
Flats and hotels	25 gall. per hour
Hospitals	40 gall. per hour
Barracks	60 gall. per hour
Shower baths	10 gall. per hour
Foot baths	10 gall. per hour
Slipper baths	50 gall. per hour
Sports pavilions	60 gall. per hour
Wash basins :	
Residences, flats, and hotels	5 gall. per hour
Public toilets	15 gall. per hour
Barracks	10 gall. per hour
Sinks :	
Residences and flats	10 gall. per hour
Hotel and restaurant kitchens	50-60 gall. per hour.
Slop sinks	20 gall. per hour
Cleaners' sinks	20 gall. per hour
Barracks' sinks	20 gall. per hour
Showers :	
Barracks and sports pavilions	20-50 gall. per hour
Cleaning, per 1,000 sq. ft. floor	5-6 gall. per hour

(e) *Average quantity of water at* 140° *F. in gall./person/day.*

Residences and flats	20 gall.
Mansion flats	30 gall.
Hotels	30 gall.
Hospitals	40 gall.
Hospitals (infectious diseases)	50 gall.
Offices	3-5 gall.
Factories	5-10 gall.

Steam

Steam is made by heating water from its original temperature to 212° F. or above. If the water is in an open vessel it cannot reach a higher temperature than 212° F. at sea level, with a correction for altitude above this level, and after the ebullition stage the steam is evaporated to atmosphere. If, however, the water is in a closed container or vessel, higher temperatures can be achieved with consquent increases in pressure. As each pressure point of saturated steam is related to a definite temperature only, this is made use of for heating purposes by operating plant at predetermined pressures. In producing steam it is first necessary to put in heat to lift the water from, say, 50° F. to 212° F = 162 B.Th.U. per lb. of water as sensible heat, then to add about 970 B.Th.U. per lb. as latent heat, giving a total heat of 1,132 B.Th.U. per lb. in this instance. As the difference in total heat between steam at a gauge pressure of 1 lb./sq. in. and at 500 lb./sq. in. is only 71 B.Th.U./lb. (i.e., 1,152 and 1,223 B.Th.U./lb. from 32° F., respectively), there is obviously no reason for carrying a higher pressure than is required for the desired temperature. Also, as the latent heat is practically a constant figure which cannot be altered, it is necessary to lift the feed water temperature to the highest practical level by heating it with all available waste heat, with no additional fuel, to ensure the greatest possible working efficiency. In small installations the simplest method is to return all condensate to a hotwell, and minimize the amount of cold water make-up from the mains supply. In large installations the high temperature flue gases are first employed for superheating the saturated steam, and then passed through an economizer before being vented to the base of the chimney at a temperature of 500°-600° F. An economizer consists essentially of a number of

pipes or cast iron sections through which feed water is pumped in counter-flow to the passage of hot gases around the outside of the pipes. Taking a simple example of feed water at 50° F. and at 150° F. with an assumed latent heat of 970 B.Th.U. per lb. and an efficiency of 70%, the respective consumptions of 500 C.V. gas to raise 1 lb. of water to 1 lb. of steam would be respectively 3.23 and 2.95 cu. ft. of gas. In average give-and-take practical experience with gas-fired boilers it is reasonable under normally good conditions to allow 3.0 cu.ft. of 500 C.V. gas per lb. of steam, with proportionately higher figures for lower calorific gases.

The applications of steam for process work are numerous, as indicated by the following list :—

Bakeries	Proving, atmosphere for special baking ovens
Bakelite moulding	Presses
Bending wood	
Button manufacture	Steam heated dies
Clothing	Sponging, shrinking, pressing, pleating and finishing
Cosmetics	Steam jacketted pans
Dairies...	Bottle washing, sterilizing, pasteurizing
Distilling	Water, alcohol, ether, perfumes and drug products
Drying...	Pipe coils for colours, chemicals, paints, textiles, &c.
Dyeing	Dye boiling and drying finished products
Feather manufacture ...	Dyeing, drying, and softening
Glue	Steam jacketted kettles
Hats	Drying, presses, sizeing rooms, cleaning pots, band blocking, velvet and felt steaming
Laundries	Hot water supply, soap boiling, drying rooms, irons, drying calendars, &c.
Plating baths	Caustic and plating solutions
Preserves	Jacketted kettles, bottle washing, and sterilizing
Rubber	Melting rubber compounds and vulcanizing
Sterilizing	Ice cream, milk cans, bottles, surgical instruments, clothes, bandages, &c.
Sweet making	Jacketted pans
Tobacco	Humidity control
Umbrellas	Steaming covers on frames, &c.

No reference has been made to the use of steam for power purposes, but in old factories this was done extensively, with ancillary demands for process uses and factory heating. Where the power unit has been replaced by electricity for power and lighting it is obviously uneconomical to employ a large steam boiler for a very small summer load, and a low winter load, even with the addition of the space heating load. There is clear scope in such cases for the substitution of gas heating for both purposes, and even if steam is considered essential for certain processes this can be better supplied from a small gas-fired boiler. When estimating the steam demand for pipes used for factory heating a figure of 450 B.Th.U. per sq. ft. of exposed pipe surface can be used, and an allowance of 1,000 B.Th.U. per lb. of steam demand. The latter represents the amount of heat lost to atmosphere from the steam between leaving the boiler and returning to the hotwell from the steam traps as water at about 150° F. Bulk hot water is sometimes obtained from steam coil heated calorifiers. These are usually about 60% efficient, and the maximum hot water output can be obtained from the makers.

In many cases steam is wastefully employed because the operators inevitably open the valves to the full position. For fixed load demands, whether in kitchens, tanks, or other processes, it is possible to assess the actual amount of steam required for a particular job and ensure that this is adequately met by inserting a suitable orifice plate in a flat-faced pipe union between the steam valve and the apparatus. An indication of the amount of steam which can pass through a known orifice at various gauge pressures is given below, and is rather startling when one thinks of the usual ½ in. steam valve and piping run to most pieces of apparatus. In one case a steam heated hot-cupboard with a hotplate 6 ft. long by 2 ft. 6 in. wide with steam at 5 lb./sq. in. gauge was fed with a ½ in. pipe and using about 200 lb. of steam per hour. This was reduced to 30 lb. per hour by the use of a $\frac{3}{16}$ in. diameter orifice, with full satisfaction to the operators, who were unaware of the alteration. The table mentioned is given below, as follows :—

Steam Consumption Through Orifices
(Approx. capacities in lb. of steam per hour)

Diameter of orifice in.	Steam pressure (gauge) in lb./sq. in. 5	10	15	20	40	60	100
$\frac{1}{16}$	3.2	4.0	4.8	5.6	8.8	10.5	18
$\frac{1}{8}$	7.2	9.0	10.8	12.6	19.8	27.0	42
$\frac{1}{4}$	12.7	15.8	19.0	22	35	48	73
$\frac{3}{16}$	28.4	35.5	42.6	50	78	107	163
$\frac{1}{4}$	50.4	63.0	75.6	88	139	189	290
$\frac{5}{16}$	113.7	142.0	170.5	199	313	426	656
$\frac{3}{8}$	202.0	252.6	303.0	354	556	758	1,162
$\frac{1}{2}$	454.0	568.0	681.7	795	1,250	1,704	2,613

Steam Boilers

There are a number of types of large steam boiler units made for power station generation and the like, but these are outside the scope of usage likely to be met with in industry so far as gas application is concerned. The largest gas-fired boilers are probably those used at coke ovens, usually of the Spencer-Bonecourt type, and the economics of these will be of the order of 1½d. per therm. It is, however, quite common to meet Cornish or Lancashire boilers in industry of capacities from 3,000-10,000 lb. of steam per hour, and consideration of the conversion of these to gas-firing may be raised. Except for unusual cases of short period high peak demands where gas might be useful as an ancillary fuel it is otherwise not a proposition. Some idea of the economics may be gained by taking the case of a laundry steam boiler rated at 5,000 lb. of steam per hour for 47 hours per week and 50 weeks per year. With gas available at 4.25d. per therm net and coal at 40s. per ton it was found that when all labour and other coal costs had been fairly evaluated, the annual cost with gas would be over £1,000 more than with coal. While in agreement with the fact that the cost of coal and labour has increased to a greater degree than the price of gas, it is debatable whether a steam load in excess of 1,500 lb. per hour is a satisfactory economic proposition to the user. But there is a clear case for gas at up to 5d. per therm for boilers rated at, say, up to 1,000 lb. of steam per hour, and up to the optimum rating given above if the price of gas is of the order of 4d. per therm. As the matter is clearly related to fuel and labour costs, and these vary widely throughout the country, each case must be evaluated in the light of local conditions.

Apart from running costs the gas-fired steam boiler has the great advantages of control of heat input against demand at any time with full operating efficiency, and if this is linked with pressure, feed-water, and low-water level controls the boiler can be made a completely automatic unit during its operating periods, with an almost complete absence of labour beyond that required for lighting up, closing-down, and occasional maintenance.

There are a number of boilers arranged for gas-firing, the best known types being those made by Cochran & Co. (Annan), Ltd., Spencer-Bonecourt, Ltd., Towns Gas Boilers, Ltd., Auto-Control Boilers, Ltd. (Vesta), Isaac Braithwaite & Co., Ltd., Kendal, and J. Brockhouse, Ltd. While they vary in design, most of these boilers use gas at normal district pressure in conjunction with standard type governors, relay control valves, safety cut-off valves, flame-failure safety devices, pressurestats, and, occasionally, time switches. The boilers are made with standard fittings, and feed-water can be fed into the boilers by head only, through an automatic valve, for pressures of 5-10 lb./sq. in. gauge, by hand-operated injectors, or by automatically controlled steam or electrically driven pumps. In the latter cases it is good practice to arrange for a separate standby feed from an injector feed with towns water from a ball-valve supply tank to cover emergency conditions, since few water supply companies will permit the direct connexion of their mains to pressure boilers. Where possible, it is good practice to install more than one boiler unit to cover breakdowns, and the annual inspection periods, without cessation of production. The initial capital expenditure may be greater, but it is sound policy in the long run. All steam pressure boilers must be fitted with the mountings specified by the Board of Trade Regulations—*i.e.*, safety valve, water gauge, test cocks, pressure gauge, &c., and be subject to periodic inspection by qualified engineers of the company with which they are insured.

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APPENDIX

Hot Water Requirements of Swimming Pool

The use of swimming pools is by no means a modern innovation. Cold water pools were employed as combined luxury units and landscape features in hot climates for many centuries before the thermal-bath system was inaugurated ; in the Roman Empire they were in use as early as 312 B.C. The incidence of natural hot springs, in Greece and Japan, for example, caused the development of bathing as a social habit among the masses. In Western Europe this was passed from the Greeks to the Romans, who in turn built baths or pools in countries of settled occupation. By Agricola's time (A.D. 78-85) the thermal-bath system had been established throughout the Empire for several centuries, when Seneca (born about 3 B.C.) compared the old-fashioned bathing conditions of Scipio Africanus with the modern luxury prevailing in his time. The thermal system was operated in parallel with the central heating hot-air system provided to give an optimum temperature of about 70°F. Bathers left their clothes in a changing room and went first to the cold-room (frigidarium), to contract their skins, then to a room warmed by hot air from the hypocaust below, on to the hot-room (caldarium), and finally to the sweating-cell (sudatorium). Here copious sweating was produced by the heat from both floor and walls, and by the hot water poured over them by the bath attendant. When the limit of endurance was reached they then moved by stages through the hot and warm rooms to the frigidarium where, after resting, they finished with a dip in the cold plunge or small swimming pool, prior to towelling and anointing.

While the use of showers and pools is a natural hygienic function in hot climates it tends to require fostering in countries of sustained cooler weather, and there was a lapse of many centuries between the leaving of the Romans in about A.D. 400 to the end of the 19th century when public baths in England were practically non-existent. From the beginning of this century, and particularly during the past 20 years, there has been very considerable development in the use and building of swimming pools from the small domestic size, through the roadside "Lido," to open-air fresh and salt water pools, and up to the large closed public baths with elaborate ancillary amenities of slipper baths, Russian and Turkish baths, laundry and washhouse facilities, and central heating.

Applications Requiring Heat

It will thus be seen that there has arisen a clear demand for hot water and steam in bulk to give these services, and a brief picture of the evolution of this will not be amiss at this stage. Dealing first with the bath water, this is heated because the number of hardy swimmers likely to appreciate water at 50°F. is limited, the novice will not be attracted, and thus the bath will not justify its existence as a health and social service. Probably the oldest method was to run perforated steam pipes along the bottom of the bath. This was unsatisfactory, giving an unpleasant taste and bad colour to the water; it was also noisy and the water temperature was patchy. The next system employed one or more large steam injectors which induced water from the deep end of the bath and returned it to the shallow end. It had all the objections of the first system except noise. A more recent method employs a steam heated calorifier through which all the water is passed, in circuit with filtration plant. The last method is one of water circulation through low pressure hot water boilers, preferably with a positive circulating pump. The last two methods are those now generally employed, as they lend themselves admirably to control of both temperature and flow. On the other hand, where one of the older baths has been converted from either the first or second method of water heating it is quite a good idea to leave the sparge pipe in the bath for emergency or temporary direct boosting of heat into the water, as against the slower rate of heating with the filtration plant in circuit.

The water temperature of open-air pools is usually 65°-68°F, with 72°-76°F for closed baths. The fuel estimations are normally three-stage, the initial heating of the bulk of the water for a 16-22 week season in open-air pools, maintaining the water at temperature, and heating the make-up water. In early days the practice with the majority of pools was to refill them completely once or twice a week, but with modern filtration plant the make-up water varies from 2% to 10% of the total volume per week. The economic virtue of the latter system, even with cost-free water is typified in the example of a pool of 755,000 gall. capacity. Once a week for a 20 week season the pool was emptied and re-filled with the above quantity of water at 50°-55°F which had to be heated to 65°F at the following estimated cost:—

	£
Cost of pumping for 20 weeks	40
Cost of heating up for 20 weeks plus maintenance	390

Total £430

With a filtration system the running costs were as follows:

	£	s.	d.
Cost of electricity for pumping	126	0	0
Cost of gas, heating up plus maintenance	80	12	0
Cost of chemicals	26	18	0

Total £233 10s.

To the above should be added the interest and depreciation on the capital cost of the filtration plant, but such cost was considered to be far outweighed by the healthier conditions obtained.

Perhaps it would be of interest to give an indication of the method of calculating the gas consumption for heating an average open-air pool. The initial heating and the heating of the make-up water can be calculated, but the heat losses to atmosphere vary with weather conditions and the pool temperature maintained. Actually consumption figures for pools of similar size also vary widely for a number of reasons, but a reasonable estimate for the pool itself can be calculated on the basis indicated in the next column.

Another heat usage of widely varying demand is the laundry. In its most simple form it will require either a washing machine or washing sinks, rinsing sinks, and a drying chamber, with extension capabilities up to the demands of a public laundry replete with washing compartments, washing machines, hydro-extractors, and means of drying, mangling, and ironing. In a general way this is a field for steam usage, but the main demand is actually for hot water at about 110°F, and consideration should be given to the use of hot water boilers and storage to meet both light and heavy shock demands, with either hot water coils or direct gas application for drying purposes. Except as a minor ancillary demand the raising of steam for such uses may prove uneconomic.

Slipper baths at 30 gallons of water at 105°F for two baths per hour per cubicle with peak load periods ranging up to six hours on Saturdays create a heavy hot water demand at about 140°F for mixing down to 105°F, and vary widely in this demand over a weekly period. This is clearly a case for multiple hot water boiler units and ample storage backing, so that boiler units can be swung into action quickly when desired, and at light demand only an odd maintaining unit be left in operation.

Calculation of Gas Consumption

Data

Capacity of pool	100,000 gall.
Temperature to be maintained	70° F.
Make-up water, say	5% of total capacity of pool per week
Initial water temperature ...	50° F.
Boiler efficiency...	90%

Calculations

1. *Initial heating over* 3 *days*

$$\frac{100{,}000 \text{ gall.} \times 10 \text{ lb./gall.} \times 20^\circ \text{ F. rise}}{100{,}000 \text{ B.Th.U. (1 therm)} \times 0.9 \text{ (90\% efficiency)}} = 222 \text{ therms}$$

Heat loss over 3 days at 3° F. per night

$$\frac{100{,}000 \times 10 \times 3 \text{ days} \times 3^\circ \text{ F. rise}}{100{,}000 \times 0.9} = 100 \text{ therms}$$

Total = 322 therms (32,200,000 B.Th.U.)

∴ size of boiler required to heat up pool in three days should be rated at 500,000 B.Th.U./hour

2. *Make-up water—*5,000 *gall. per week for* 20 *weeks*

$$\frac{5{,}000 \times 10 \times 20 \times 20^\circ}{100{,}000 \times 0.9} = 222 \text{ therms}$$

3. *Heat losses*

$$(a)\ \frac{100{,}000 \times 10 \times 3^\circ \times 8 \text{ weeks} \times 7 \text{ days}}{100{,}000 \times 0.9} = 1{,}870 \text{ therms}$$

$$(b)\ \frac{100{,}000 \times 10 \times 2^\circ \times 5 \text{ weeks} \times 7 \text{ days}}{100{,}000 \times 0.9} = 780 \text{ therms}$$

$$(c)\ \frac{100{,}000 \times 10 \times 1^\circ \times 7 \text{ weeks} \times 7 \text{ days}}{100{,}000 \times 0.9} = 545 \text{ therms}$$

Estimated grand total for season = 3,739 therms

For vapour or Russian baths it is necessary to have low pressure steam at about 5 lb./sq. in. pressure available for blowing into the room to induce heavy perspiration, and three-tier temperature variation ranging from 120°F at the top to 100°F at the bottom. Simple head showers with thermostatically controlled hot water at not more than 110°F are also required.

The Turkish bath uses dry air at a high temperature instead of wet steam at a relatively low temperature, and this can be provided by a gas-fired air heater. The temperature of the three hot rooms are respectively 220°-200°F, 180°-160°F, and 160°-140°F. In one example where the rooms were 18 ft. wide x 10 ft./17 ft./20 ft. long a gas-fired air heater delivering 40,000 cu.ft. of air per hour at 420°F, to give four changes per hour in the room, maintained the following temperatures:—

Laconicum, 220°F; calidarium, 185°F; and tepilarium, 150°F. At a gas rate of 500 cu.ft./hour the total daily consumption from 7.45 a.m.-5.45 p.m. was 4,300 cu.ft. (21.5 therms).

Finally, there is the heating load varying from hot water pipes beneath the seats of the dressing cubicles in open-air pools to full space heating of closed baths with galleries and glass roofs, round which pipes must be run to prevent down-draughts and condensation. The last mentioned item is important, as the dripping of condensate upon spectators and swimmers is very objectionable and would make such a bath most unpopular as a venue for sporting events. The relative humidity of the air must be studied in relation to the room temperature, evaporation from the surface of the water, and ventilation, to establish the best comfort conditions. This is the specialized job of an experienced heating engineer and illustrates the complexity of the problems which arise in the design of modern baths. It will be realized that with closed baths the heat loss from the surface of the water is considerably reduced owing to the steady temperature of the atmosphere compared with that of open pools subject to varied air temperature and wind effect, so that with the advantage of additional comfort it is fair to offset the total cost of space heating with the above fuel reduction.

Operating Costs and Figures

This is one of the most difficult problems to answer owing to the wide variance of amenities made available to users, the type of pool or bath, and the district density and social habits of the people. Actual figures for one small closed pool of 70,000 gall. capacity maintained at 76° F. for solid fuel and gas-firing are given below as follows:—

1. *Solid Fuel*

	£	s.	d.
(*a*) 63 tons 14 cwt. coal ... ... 9 tons 6½ cwt. coke	62	6	0
Labour attributed to boilers, &c.	73	0	0
Water—3,943,000 gall. at 1s. 9d. per 1,000 gall. required to fill and empty twice per week	345	0	0
	£480	6	0

Exclusive of electricity *for pumping*.

(b) Attendance over 29 weeks :

Bathers	5,305	
Children	5,893	
Club	1,249	
Total		12,447
Slipper baths		227

2. *Gas-Firing*

	£	s.	d.
(a) Pool heating, 3,470 therms ... ... } Slipper baths, &c., 1,870 therms ... ... }	96	0	0
Meter rent		—	
Labour attributed to boilers, &c.	16	0	0
Water—68,570 gall. make-up at 1s. 9d. per 1,000 gall. ...	6	0	0
	£118	0	0

Exclusive of electricity *for pumping*.

(b) Attendances over 29 weeks :

Bathers	6,369	
Children	6,926	
Club	1,250	
Total		14,445
Slipper baths		344

The figures given are for the 1936 season with solid fuel and the 1937 season with gas-firing, showing an obvious reduction in operating costs due to absolute control of fuel usage against demands, and increased popularity among users.

More up-to-date figures are given below showing the number of bathers against gas consumption for a modern bath of 140,000 gall. capacity which was completed in 1943. The boiler plant consists of one No. 1 H.S. horizontal Vesta steam boiler rated at 880 lb. of steam per hour, from and at 212°F, for pool heating and laundry demand, with two "C2" type Vesta hot water boilers each rated at 800,000 B.Th.U. per hour for central heating and hot water demand, the latter being 600 gall. of water per hour raised from 40°-140°F. All boilers are fully automatic in operation. The usage figures are as follows:—

Year ending Mar. 31	No. of bathers	Gas consumption (therms)
1945	99,622	36,857
1946	99,259	40,271
1947	94,743	47,583

Note.—The discrepancy in the 1947 figures is due to the prolonged spell of evere weather.

The difficulty mentioned at the beginning of this section can be illustrated by the fact that the therms of gas used per season by open pools range from 10 to 90, and for closed pools from 100 to 600, all per 1,000 gall. of bath capacity. The last figure represents two baths of 30,000 and 39,000 gall. capacity, but includes 20,000 slipper baths, 26,000 showers, 500 vapour baths, and central heating.

Where steam is required a gas consumption figure of 3 cu.ft. of 500 C.V. gas per lb. of actual steam evaporated is a sound working figure for estimating purposes, so that with the equivalent factor of 5 therms per 1,000 cu.ft. of this gas it is relatively easy to calculate costs against either a price per therm or per 1,000 cu.ft. For gas of any other calorific value a straight conversion will give the requisite data (*e.g.*, with 450 C.V. gas the number of therms per 1,000 cu.ft. would be 4.5 and the figure of 3.0 cu.ft./lb. of steam would become 3.33 cu.ft./lb.).

On a straight fuel to fuel basis it would appear that with coal at 50s. per ton, and gas at 6d. per therm the gas would cost just twice as much as coal. Differences in operating conditions and control of fuel against precise demands will close this slightly, and allowances for labour, removal of ashes, &c., may throw the balance in favour of gas, quite apart from the unevaluated items such as cleanliness and smoke abatement. Generally speaking, however, gas is economic up to 1,000-1,500 lb. evaporation/hour and becomes less so in ratio with increased demands. On the other hand, there may be found to be few or no applications where steam is really necessary, as such might well be done with either hot water or direct gas application at much lower fuel cost. For example, if hot water is required at 140°F it is less costly to raise 1 lb. of water from 50° to 140°F. (90 B.Th.U.) than from 50°F to steam at 30 lb./sq. in. gauge (1,119 B.Th.U.) and then produce hot water at 140°F through a calorifier at about 60% efficiency. It will thus be seen that very careful consideration of fuel economics must be made prior to the installation of a baths scheme as part of the total economics of such an installation, always bearing in mind the potential labour position and the necessity of attracting and retaining the maximum possible clientele.

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*In response to considerable demand from many sources we intend to republish this series of twelve articles by Mr. Dickinson in suitable booklet form. It would be a help to us and an insurance against disappointment if gas undertakings, individual students, and, in fact, all interested, would inform us without delay of their likely requirements. While the price of the reprint in booklet form will be relatively small, the exact figure can only be arrived at in the knowledge of likely demand. Enquiries should be addressed to the "*GAS JOURNAL*," 11, Bolt Court, Fleet Street, London, E.C.4.*

OBJECTION TO GASWORKS EXTENSION

A motion that the ratepayers in Uddingston and district should protest against the Lanark County Council's proposal to extend the gasworks there was carried at a meeting last week convened by Uddingston Ratepayers' and Electors' Committee. An amendment based on a plea by County Councillor Tom Rennix, Uddingston, Convener of the Gas Committee, and County Councillor Col. R. S. Weir, that the matter be left in their hands, was defeated.

Dr. G. M. Crawford, Chairman, in stating the purpose of the meeting, said that provided all gave their consent the work would proceed; otherwise, if any objected, the County Council would have to present a petition to the Sheriff-Principal of the county for his decision, which would be final. The County Council had stated that consent was only needed for the erection of purifiers—five in number—which were totally enclosed cast-iron boxes each 45 ft. by 45 ft. by 6 ft. 6 in. This apparatus would require to be opened and cleaned annually. The whole operation would take from 10 to 14 days, and a nuisance might be expected at that time. The purifiers were to be erected at the east end of the site.

The plan also showed an ingoing and an outgoing railway loop to the old L.N.E.R. line and a site for a future gasholder of greater dimensions than the present one. There was also an immense area for the storage of coal, coke screens, wagon tipplers, and workshops and stores.

Nuisances which might arise were smoke given off during the charging and drawing of the retorts and smoke from the chimney of the gasworks. These would cause atmospheric pollution. Then there would be the generation of water gas when the red hot coke was quenched with water, and dirt and dust from the coal and coke. Added to that would be the noise from the railway and wagon tipplers, the pollution of the Myers Burn, and a general loss of amenity.

Uddingston was a residential centre and the gas to be produced was not for local use.

Mr. John Fergus, Chairman of Uddingston Unionist Association, moved that a protest should be made, while Mr. Bright moved the amendment. Mr. Fergus said that those who opposed the project were not objectors to a gas undertaking of increased size. They welcomed its need. What they obejcted to was that it should be set up in Uddingston, a residential area, whose amenities were now threatened.

'A nationalised industry on a large scale is proposed,' continued Mr. Fergus. 'The only excuse seems to be that a gasworks is here already. Uddingston was justly proud of its own gasworks. This new project is not for Uddingston. It is to supply industrial areas 10, 12, and 15 miles away, and it is proposed to put it up in an area where we are told coal is petering out.'

He concluded by saying that the project could quite well have been planned for a non-residential area. There were miles of undeveloped land between Uddingston and Shotts.

Mr. Bright said he believed the project was in the best interests of the area and of all gas consumers. He appealed to those present to support his amendment. Before the vote Councillors Rennix and Weir, on the invitation of the Chairman, gave their views on the matter.

Convener Rennix said that the wages bill for Uddingston gasworks alone was £1,000 a week. This would increase when the works were extended. The Gas Committee were rather proud of the fact that the demand by industry for gas was so great throughout the county. A good deal had been said about pollution, he went on, but, as far as the burn was concerned, the water was going in practically clean. They had put in satellite ponds to take the obnoxious stuff from the gas-water before it went to the burn. In his opinion the proposed new purification plant would cause even less smell than the plant that was in use at present. New carbonising plant would be of the latest kind, and there would be dust extractors.

'I think it will be a great pity if anything is done by the people of Uddingston to stop this extension,' said Mr. Rennix. 'Coal pits are becoming exhausted and factories in the county are employing mainly female labour. Here we have a work that will employ male labour except in the office staff.'

Col. Weir said that he had many times praised the efficiency with which the gasworks were run. Gas was the only bright spot in Lanarkshire's budget. In spite of rising costs they were supplying gas without raising the price to the consumer.

The Council was not a solitary agent in the matter. There was a body in St. Andrew's House which had urged development. Hamilton was drawing gas from Uddingston, and their ability to produce an adequate supply was being taxed to capacity. Stewarts & Lloyds had a big development at Mossend, and they would demand a very large supply of gas. It was essential, therefore, to extend the works.

The motion of protest was then approved.

A Playing Field has been purchased for their Coventry factory by George Wilson Gas Meters, Ltd. It is intended to use the 2½ acres for a football and cricket pitch and tennis courts and a bowling green.

COMPANY MEETINGS

THE GAS LIGHT AND COKE COMPANY

THE Two Hundred and Forty-second Ordinary General Meeting of the Proprietors of the Gas Light and Coke Company was held on Thursday, February 24th, 1949, at Gas Industry House, 1, Grosvenor Place, London, S.W.1. The Governor, Mr. MICHAEL MILNE-WATSON, presided.

Mr. BRIAN WOOD, M.A., Director and Secretary, read the notice convening the meeting, and the Corporate Seal of the Company was affixed to the Register of holders of Capital Stocks.

The GOVERNOR said: Ladies and Gentlemen, the report and accounts for 1948 having been sent to you I assume that you will, as usual, take them as read. (Agreed.)

I should like to begin my speech by referring to the very sad loss to us all caused by the death of Mr. Henry Woodall. Mr. Woodall had been Deputy Governor of the Company from 1926 and had been a Director since 1913. I have on a previous occasion referred to his close ties with this Company, but I would remind you that we have a special reason to remember the Woodall family in that it was Mr. Woodall's father, the late Sir Corbet Woodall, who, as Governor, introduced Co-partnership into the Company in 1909.

Mr. A. E. Sylvester's Appointment

In mid-April of last year the appointment of Mr. A. E. Sylvester as Chairman-designate of the new Gas Council was announced, and, I know you will join with me in congratulating him and wishing him every success. At the end of September, Mr. Sylvester resigned his directorship and Mr. Brian Wood who is a Barrister-at-Law and has been Secretary of the Company since 1937 was elected to take his place. Mr. Wood's appointment will be put before you for confirmation later in this meeting.

I should now like to make a few comments on the Balance Sheet and Accounts, probably the last to be issued by the Company. Account No. 4 shows the movements during the year in our Fixed and Long Term Assets and you will notice that there is a net addition of £1,833,000. This indicates an appreciable step forward in our programme of capital expenditure to meet the increased demand from our consumers and renewals of assets which are held on a depreciation basis.

Revenue Accounts

The Revenue Account (No. 5) which covers the business done during the year shows a substantial increase in the revenue from Sales of Gas, due largely to increased sales of 2.44% more than in 1947 and to increases in price. By-products produced an increased revenue except 'Ammonia and Ammonia Products'; this still reflects Government price control to which I referred last year, and as a result of which we are having to sell Sulphate of Ammonia below the cost of production. On the debit side coal shows a substantial increase, partly due to an increase in average cost at the Retort House of 6s. 8d. per ton and partly to increased usage. The increase in oil arises from the loss of the Government subsidy and an increase in the gross cost of 1.6d. per gallon; the quantity used was substantially less. There are no other important features in the Account which shows a balance carried forward to Net Revenue Account (No. 6) of £2,444,000. This latter account has several exceptional items of which you would doubtless like some further explanation. The first is the credit in respect of surplus provision for War Damage contribution of £200,000 which arises on the virtual ascertainment of our liability. A Bill has been presented to Parliament styled 'War Damage (Public Utility Undertakings, etc.),' providing, *inter alia*, that the contribution by the Gas Industry shall be 27½% of the gross damage sustained by the Industry; the result is to free for the Company the £200,000 I have just mentioned. The next item is Income Tax, which liability has been calculated on an entirely different basis in consequence of the vesting of the Company's Undertaking on May 1 next, and instead of a charge we are able to credit a sum of £190,000. For reasons which I will explain more fully in a moment we have transferred to 'Further Provision for Maintenance and Renewal of Buildings and Plant' a sum of £1,300,000 and there is a profit of £926,000 which more than covers the year's requirements for Dividends and Co-partnership.

Reserves

You will have noted from previous Balance Sheets that for some years past the Company has maintained a substantial provision for equalisation of Maintenance and Renewals but we have always had in mind that, if the provision did ultimately prove to be insufficient, there were certain other revenue reserves including a large 'carry forward,' which would be available towards any deficit; on the other hand these reserves would have been equally available, at any time, for dividend purposes, up to the authorised limits, if there had been a deficiency of profits in any year. Thus it was undesirable to take any action which might adversely affect the Stockholders' interests, until the necessity arose, but this consideration no longer applies and your Directors have transferred to Net Revenue Account the Reserve for Contingencies, which has been added to the 'carry forward' from 1947 making a total of £1,232,000. From this sum transfers have been made of £350,000 (in addition to the £1,300,000 already mentioned) for further provision for Maintenance and Renewal of Buildings and Plant and of £665,000 towards the cost of War Damage not yet reinstated, which can be explained shortly as follows:—During the year the Company's claim for War Damage was agreed with the Ministry of Fuel and Power at £3,652,000, after allowing for depreciation on certain assets and providing for an 'uplift' of 100% on 1939 prices on work not executed and not under contract at the time the claim was prepared. Since this basis was agreed there has been a further increase in the cost of reinstatement work and it has been considered prudent to provide for an 'uplift' of 150%, and for the depreciation which was deducted on the agreement of the claim, so making full provision for reinstatement at current prices.

Ample Funds in Hand

The effect of these transfers after taking in the balance remaining on the year's working is to reduce the 'carry forward' to £225,000 which, together with the Reserve Fund of £263,000, is considered ample for the purposes of the Company between Jan. 1, and May 1, 1949. The transfers we have made in the year should go a long way towards meeting the cost of the renewal and reinstatement programme.

The Balance Sheet (Account No. 10) shows that Stores on Hand continue to increase in value, partly owing to price and partly to quantity; and a careful control is maintained to ensure that as far as practicable quantities do not get out of line with requirements. Hire Purchase and Deferred Payment Accounts have increased following our policy to sell appliances on these terms as and when they become available. The War Damage claim I have already referred to and its liquidation must obviously await the necessary legislation. Sundry Debtors have increased with increases in business and prices, whilst Investments and Cash show a very material reduction due to the increases in other assets and variations in liabilities.

Plant Reconstruction

Turning now to the progress of the work of plant reconstruction which I mentioned to you last year, I am glad to say that this is progressing satisfactorily even if more slowly than one would wish. On Nov. 4 the third battery of coke ovens at Beckton (having a capacity of 7½ million cu.ft. per day) was inaugurated by Her Royal Highness the Duchess of Kent. This event gave pleasure to every employee of the Company and has added yet another Royal Occasion to the history of Beckton.

New plant is slowly repairing the losses of the war years, but the potential demand still far exceeds our powers of supply. Fortunately another mild winter has enabled us to meet our obligations in spite of the fact that we have been called upon to supply 2.44% more gas than last year, making a total increase over 1938 of 12⅓%.

On Oct. 14 the m.v. 'Adams Beck' was launched at Burntisland and we hope will be in commission early in March. This ship, which will carry a cargo of 2,600 tons, is the first of five modern diesel engined colliers that the Company has under construction to maintain the supply of coal to our riverside stations at Fulham and Nine Elms.

I have already referred to the increased revenue from By-products, but I would like to make special mention of the fact that we exported 155 thousand tons of coke, which together with our other exports, including sales of creosote to the United States of America, have meant a contribution of £1,348,000 to the country's export drive; moreover, we sold an appreciable quantity of products to other industries in the export market.

Improved Supply of New Cookers

On the commercial side I am glad to report that there has been a considerable improvement in supply of new cookers and gas appliances generally and we are now able to supply modern cookers to meet the needs of all people moving into new homes. We have also extended our Hire Purchase facilities, but there is not yet that free supply of gas apparatus which would enable us to meet an ever-increasing public demand. In particular, the shortage of gas refrigerators is still very serious as the demand for these, on account of their complete reliability and silence, is greater than ever. But the position is improving and we have recently been able to meet priority needs of Local Authorities and other landlords concerned with new housing. The Purchase Tax on water heaters, although reduced during the year from 75% to 66⅔%, is still prohibitive to most people and is a cause of hard-

ship not only to those setting up new homes, but also to those who wish to replace by gas old and often wasteful means of water heating.

During the year we have celebrated the 50th anniversary of the formation of our Home Service Section which has done so much useful work in helping housewives to get the best service from their gas appliances and in advising generally on all problems connected with home running.

Labour Matters

Turning to labour matters there have been wage increases during the year which accounted mainly for the increase in the price of gas by 0.6d. per therm in August last. Negotiations have also been continuing with the Staff Unions and scales have been agreed covering Clerical, Technical and Administrative Grades, all of which came into operation retrospectively on Jan. 1, 1948.

In my speech last year I mentioned that the general post-war unsettlement had tended to make men change their jobs more frequently. I am pleased to say that during the year our labour force has become more stable, which has the two-fold advantage of saving in training of men on the job and also of increasing the team-spirit on the works, which we are so anxious to encourage. In a Company of this size it is always difficult to give all employees an insight into what their colleagues are doing, which results in a tendency for people to work in water-tight compartments and not realise their position in the scheme of things. To overcome this we have produced a film entitled 'Behind the Flame,' which has the object not only of showing the public the very varied work which the Company has to perform to provide them with gas and coke, but also of helping all the Company's employees to understand what part they each play in the organisation as a whole.

Another attempt we have made to interest our employees in their work has been to organise a series of visits to other industries, which has, we hope, proved as successful as they were popular. One last point upon training and education which I think is worth mentioning has been the use of the T.W.I. (Training Within Industry) method which we have adopted for many grades, particularly supervisory, and I cannot speak too highly of its success and popularity.

Pensions

On July 5, 1948, the new National Health and Insurance Acts came into force. There was some doubt as to whether employees would wish to continue their contributions to our Pension and Benefit Schemes at the same rates as in the past owing to the compulsorily increased National contributions. I am glad to say, however, that they have taken the long-sighted view and are using both methods to provide for their sickness and old age. The State scheme will, however, mean an increase in cost of approximately £99,000 per annum to the Company.

While on the subject of pensions, we contemplated certain improvements of a far reaching character, but regretfully had to decide that the time was not opportune in view of pending nationalisation. We have, however, made one step forward and made it possible without extra expense for a member of the Officers' Fund to commute some of his pension if he so wishes and provide for his wife on his death in retirement.

New Welfare Centre

I have on several occasions mentioned the amount of damage sustained by the Company during the war, but one of the most serious aspects has been the destruction and deterioration of works amenities. Plans are now, however, well under way to make good the lack and, in particular, I would mention the laying of the foundation stone of the new Welfare Centre at the Products Works, Beckton, by Her Royal Highness the Duchess of Kent, on the occasion of the inauguration of the new battery of coke ovens. This building will provide changing and washing accommodation up to the highest standards for industry in the country and it also includes a well appointed canteen and club rooms.

During the year we have to some extent re-organised our medical services, by dividing the Company into a number of areas each of which is served by one or more full-time Medical Officers with fully qualified Nursing Sisters responsible to them. It is not our intention that the Medical Officers should trespass in any way on the province of the National Health Insurance Doctor, but they are responsible for seeing that each new entrant into the Company is physically fit and graded for the most appropriate class of employment available. They also deal with minor accidents and injuries which may occur during the day's work.

History of the Company

As this is the last Annual General Meeting of the Gas Light and Coke Company I know you will forgive me if I say a little about the history of this great Company. Granted a Royal Charter in 1812 it will be wound up under nationalisation on May 1 this year. To anyone with any sense of historical background this cannot but bring some tinge of regret; but those of us who have worked in and grown to honour the Company and all it stands for view the change with far deeper feelings than those of regret. In its early days the Company had to battle with rival gas undertakings operating in the same area of supply. Gradually by means of amalgamations it grew to be the largest Gas Company in the world. Then, at what appeared to be the height of its fortunes it was faced with a new rival—electricity—and from then onwards there developed an epoch of intense rivalry which, rather than weakening, strengthened the Company and immensely improved its service to the public. It would be most unfortunate if, in the name of planning, this healthy rivalry were in any way curtailed, but I am glad to say that the framework of the Gas Act and the expressed policy of the Government make it plain that the fuel industries will be allowed to remain self-supporting and competitive. The public are the best arbiters in the choice of domestic fuels because they will in the long run judge in terms of price and service rendered.

Nationalisation makes the Gas Light and Coke Company into an "Area" by adding to it the Commercial and Romford Companies and eight subsidiaries previously run by the South Eastern Gas Corporation and also the Shoeburyness Gas Undertaking. This means an addition of nearly ¼ million consumers and some 450 square miles but, thanks to their geographical placing and, I believe, the flexibility of the Company's organisation, there should be no difficulty in operating the area as an efficient whole.

Compensation for Stockholders

I will not, however, go more deeply into the future of the North Thames Gas Board. I am very conscious of the fact that you, the stockholders, have as your more immediate interest, the question of what compensation the Government are prepared to give you. As you know, there will be an opportunity for a claim under Section 26 of the Gas Act, for additional compensation to meet the effects of loss of business during the war years on the compensation value of the Preference, Maximum and Ordinary stocks. At a meeting held on Jan. 28, in compliance with the provisions of the Gas Act, 1948, Sir Harold Howitt, one of the senior partners of Messrs. Peat, Marwick, Mitchell & Co., was appointed to be your Stockholders' Representative. You know that on vesting date the Company will be dissolved and that the Directors, whose duty it is to look after your interests, will go out of office. Those interests will become the responsibility of the Stockholders' Representative and Sir Harold Howitt's wide experience in negotiations gives me every confidence that he will do the best for you and maintain your rights no less firmly than your Directors themselves would have done.

I should like to mention that four members of the Company have been appointed by the Minister of Fuel and Power as Chairmen or Deputy Chairmen of Area Boards. I have been appointed Chairman of the North Thames Gas Board and I need not say how much I welcome the appointment of Mr. F. M. Birks as Deputy Chairman; Mr. W. K. Hutchison and Mr. R. S. Johnson are respectively Chairman and Deputy Chairman of the South Eastern Gas Board.

Tribute to Employees

In conclusion I want to thank all the employees of the Company for their work during the past year. It is not an easy time that we live in and for all here impending nationalisation has inevitably produced a feeling of unsettlement. Nevertheless, all have continued steadily with the job in hand and we are proud to think that the Company is in good shape. I am fully appreciative of the fact that this is due to loyal co-operation and hard work at every level. With those remarks I now formally beg to move:

'That this meeting do agree with and confirm the Report of the Directors and the Auditors' Report and Statement of Accounts of the Company for the year ended on Dec. 31, 1948.'

The DEPUTY GOVERNOR (Mr. F. M. Birks, C.B.E., M.I.C.E.): I have pleasure in seconding that resolution.

The GOVERNOR: Before putting that motion to the meeting I shall be happy to hear any remarks that any of the Proprietors may wish to make, and I will endeavour to answer any questions that they may wish to ask.

Mr. J. CONWAY: I appreciate the fact that the Company have seen fit to introduce a film so that all and sundry may know something more about the varied work which the Company has to perform. I am also glad to note the adoption of the 'T.W.I.' method; although it is Government-sponsored, I do not think they interfere with this method internally. There is one question I should like to ask. At the bottom of page 6 of the accounts you give us the totals of wages and salaries paid during the year; can you give us the figures as to the number of employees covered by those totals?

The GOVERNOR: I have not unfortunately got the figures broken up as between wages and salaries paid. The overall figure is about 20,000, but you will appreciate that the figure varies constantly. I should be pleased to let you have the actual figures as soon as they can be produced if you will be good enough to leave your name.

Mr. CONWAY: I have been connected with the Company for several years, and I knew what the figure was some years ago.

I would like to check up and see what the position is to-day. I should like to take this opportunity of saying how much I appreciate that in the change from the old employers to the new a certain number of the administrative staff have been taken over. I think that will give the public at large a greater faith in the nationalisation scheme; they will know that there are going to be capable people at the top.

Mr. E. KNIGHT: You have mentioned something about pensions in your speech. Have you any idea what the Government are going to do about these pensions?

The GOVERNOR: I think the answer is that the Government will take over the existing Pension Funds of the Company and will be responsible for it, via the North Thames Gas Board. There is no need for any employee to fear that his pension is endangered in any way by nationalisation.

Mr. KNIGHT: My reason for asking the question was that I wondered whether the Government would step in a little later on and decide that no man could receive two pensions. I read in the newspapers the other day about a service man who was receiving sick benefit, and because he was receiving a pension, a sum of, I think, 6s. 8d. was deducted from his National Insurance benefit. I have never worked for the Gas Company, and I do not know what happens in the case of the Company's employees. You may remember I asked a question last year about pensions.

The GOVERNOR: Thank you very much. So far as I can see no employee need fear that nationalisation will in any way endanger his pension rights. With regard to the second question —whether the Government will step in and deduct service pensions where they are received, I cannot give you an answer, because I am not in a position to do so; the Government's ways are inscrutable.

There being no further questions, the resolution was put to the meeting and carried unanimously.

The SECRETARY then read the Minute of the Court of Directors, dated January 27, 1949, recommending dividends as follows:

'Resolved that it be recommended to the Ordinary General Meeting of the proprietors to be held on February 24 next that the Accounts as laid before the Court be adopted, and that dividends as follow for the half-year ended December 31, 1948, be declared, viz.:

On the 4% Consolidated Preference Stock at the rate of £4 per cent. per annum;

On the 3¼% Redeemable Preference Stock, 1970, at the rate of £3 15s. per cent. per annum;

On the 3½% Maximum Stock at the rate of £3 10s. per cent. per annum;

On the Ordinary Stock £2 10s. per cent. (actual), making a total dividend of £5 per cent. for the year 1948;

All subject to deduction of income tax.'

The GOVERNOR: I beg to move the adoption of that recommendation.

The DEPUTY GOVERNOR: I have pleasure in seconding the recommendation.

The resolution was carried unanimously.

The GOVERNOR: The next business is the election of a Director and I beg to move: 'That the Right Honourable the Viscount Mersey, P.C., C.M.G., C.B.E., who retires by rotation at this meeting and who offers himself for re-election, be elected a Director of the Company.'

The DEPUTY GOVERNOR: I have pleasure in seconding that resolution.

The resolution was carried unanimously.

The GOVERNOR: I now beg to move: 'That the appointment of Mr. Brian Wood, the Secretary of the Company, to be a Director under the provisions of Section 26 of the Gas Undertakings Act, 1934, be approved.'

The DEPUTY GOVERNOR: I have pleasure in seconding the resolution.

The resolution was carried unanimously.

The GOVERNOR: Mr. Percy Howard Ashworth and Mr. Herbert Edward Ibbs, the Company's Auditors, are due to retire at this meeting and they offer themselves for re-election. This is a matter for the proprietors, and I will therefore ask someone to move a resolution.

Mr. H. L. MANN: I have pleasure in proposing that Mr. Percy Howard Ashworth be re-appointed an Auditor of this Company.

Mr. P. F. SCARTH: I have much pleasure in seconding the resolution.

Mr. MANN: I also have pleasure in proposing that Mr. Herbert Edward Ibbs be re-appointed an Auditor of the Company.

Mr. SCARTH: I should also like to second that proposition.

Both Auditors were unanimously re-appointed.

The GOVERNOR: That concludes the business of this meeting.

Mr. CONWAY: Before you close this meeting there is one question I would like to ask, and that is with regard to the changing of our stock certificates when nationalisation takes place. Will it be dealt with by the Gas Light and Coke Company, or by a Government Department? I am particularly anxious that the matter should not get into the hands of people who want to gain personal advantage.

The GOVERNOR: It is not yet quite clear who will deal with the matter. There will be notices in the newspapers, and of course your Stockholders' Representative will look after your interests. There will be fully advertised instructions in the papers. The matter will not, of course, be dealt with by the Gas Light and Coke Company, because the Company will have ceased to exist on May 1.

Mr. CONWAY: I believe there are people about who are eager to get hold of these certificates in order that they might get a rake off for themselves.

The GOVERNOR: I hope that will not happen. I would like to take this opportunity on behalf of my colleagues and myself of thanking all the stockholders for the loyal way in which you have supported us for a great many years, and of saying how we have appreciated your confidence.

Mr. T. BRAITHWAITE: I should like to have the privilege of moving a vote of thanks to the employees of the Company. I was most interested to read in the 'Co-partners' Magazine' a report of a speech which Mr. Willsmer gave recently to the staff under his direction; we all appreciate the good work they have done and their punctual attendance in spite of many difficulties. As I said last year, I think that applies to the whole of the Company's employees. There has never been any doubt as to the loyalty of the employees in this Company, and those of us who have had many years' association with the Company—in my case it is now more than 50 years—will agree that that is so. The Company has always been looked upon as a good employer of labour and a good friend, and so it is with something more than regret that to-day we contemplate the close of the Company's career. It is a great undertaking and it has been a grand Company, having employed many thousands of people during its long history, and it has been served faithfully and well. As we look back we can recall some of the old leaders—Sir Corbet Woodall, Sir David Milne-Watson, Sir Francis Goodenough, Mr. Galbraith, and many others—who were always kind and generous. Occasionally there was a bark, but underneath the heart was good, and I say personally as one who earned his living in the Gas Light and Coke Company and as I have always said whenever the Company has been criticised, that the Company has been a model employer. I am sure that all the employees and the stockholders are very happy to know that you and some of your colleagues are now going to be leaders of the industry under the nationalised scheme. We look to you with confidence to preserve the rights and privileges of the employees as they enjoy them to-day. I want to say on behalf of all the stockholders that we thank the employees of the Company for their services during the past year. Whether or not there will ever be an annual meeting of the North Thames Gas Board we do not know, but we do take this opportunity of thanking you for all you have done for the Company in the past, and to wish you well.

Mr. W. J. SMITH: I have very great pleasure in seconding this vote of thanks. With regard to yourself I know everyone in this room shares the feeling of gratitude for your ability, and generosity and very great kindness. All success to you, Sir, in the future.

The GOVERNOR: Thank you all very much indeed for the very kind words that have been spoken about all of us, and more particularly about the employees of the Gas Light and Coke Company. They are a very grand band of people. We appreciate the fact that our services, such as they are, have been appreciated by the stockholders. We shall go on, perhaps under a different name, but we shall certainly go on in our determination to keep gas in the forefront. Again, I thank you.

PORTSMOUTH AND GOSPORT GAS COMPANY

The Annual Ordinary General Meeting of the Portsmouth and Gosport Gas Company was held at Portsmouth on Feb. 22, the Chairman, Dr. F. E. BEDDOW, presiding.

The CHAIRMAN, in moving the adoption of the report and accounts, congratulated Mr. S. E. Whitehead, a past officer, and now a Director of the Company, on his appointment as Deputy Chairman of the Southern Gas Board, under whose jurisdiction the Company would fall on vesting date. He also congratulated Mr. W. K. Tate, General Manager, on his appointment as Divisional General Manager of the Eastern Division of the Board.

He reported that the output of gas during the year had achieved a new record, the figure for last year being 4,354 mill. cu.ft. as compared with 4,242 mill. cu.ft. in 1947, which represented the remarkable increase of nearly 29% above the 1938 output of 3,382 mill. cu.ft.

Receipts from gas sales, continued Dr. Beddow, had exceeded the million pound mark (they stood at £1,044,000), for the first time in the history of the Company. A further striking advance in receipts derived from the sale of residual products, where a total of £292,000 received in 1947, was exceeded by over £100,000 in 1948.

Total receipts on the revenue account—£1,535,000—also constituted a record.

On the expenditure side of the revenue account there was a startling change in the charges for coal and oil carbonised, amounting to £762,000 as compared with £610,000 in 1947. This was due to the withdrawal of the subsidy on gas oil for carburetted water gas manufacture, and increases in the price of coal which had tripled itself over the pre-war price.

Dr. Beddow commented on the responsibility undertaken by Mr. Tate in making good the whole of the plant of the Company which could not be properly maintained during the six years of war.

Mr. W. K. TATE said the efforts of the staff had always been ably supported by the Directors, notwithstanding the imminence of nationalisation. Consumers in the area owed a considerable debt to the proprietors of the Company for the manner in which provision for the future had been made, and new gas-making plant installed ahead of demand.

As examples of this, he mentioned a new retort house capable of making 3 mill. cu.ft. of gas per day, which was waiting to go into action. Orders had also been placed for a further carburetted gater gas plant of 2½ mill. cu.ft. per day capacity, to be erected in 1950-51. These were expected to be sufficient to ensure ample gas supplies at least to 1956.

As a point of interest, he mentioned that out of every £1 of revenue received by the Company, 47% was spent on coal and oil for gas making, 24% on wages, 24% on plant maintenance and consumer service.

On future relationships, he said he was glad to know that members of the Board appreciated the necessity of maintaining local contact between the local gas undertaking and consumers. Portsmouth, he said, would still have an undertaking which, to the greatest possible extent, would be controlled locally by people who lived locally and who knew the requirements of their customers.

A tribute to Dr. Beddow 'whose kindness and gentleness over many years has permeated through the officers, and is reflected in a loyal staff,' was paid by Mr. R. W. HEWITT, the Company's Secretary and Accountant. He said 'We feel it very much that we are to lose that close touch and kindness of the Board of Directors, but you can rely on us to do our best for the industry under all circumstances.'

Sir Denis L. Daley was re-elected Director, and Messrs. Edmonds and Company, auditors, until the take-over.

A resolution that normal dividends should be declared, was approved.

At a special meeting of holders of securities which followed, Mr. Arthur Collins was appointed Stockholders' Representative of the Company for the purposes of the Gas Act, 1948, to atch the interests of all holders of securities in connection with the determination of compensation payable.

THE CROYDON GAS COMPANY

THE Annual Ordinary General Meeting of the Croydon Gas Company was held at the Company's offices Katharine Street, Croydon, on Feb. 18, Mr. HAROLD WILLIAMS, O.B.E., F.R.I.C.S., the Deputy Chairman presiding.

The SECRETARY, Mr. W. H. Haddleton, F.C.I.S., read the notice convening the meeting and the minutes of the last Annual Ordinary General Meeting.

The DEPUTY CHAIRMAN said: It is with regret—a regret which, I know, will be shared by all of you present to-day—that our Chairman, Mr. William Cash, is not able to preside at this meeting. Mr. Cash, as I told you at the last annual General Meeting, had had a serious illness from which he has now largely recovered and we have, fortunately, during the last year enjoyed the benefit of his guidance and advice in the direction of the affairs of the Company, but he does not feel well enough to conduct this meeting, and he has asked me to deputize for him.

Vesting Date

I am particularly sorry that he cannot be with us to-day because this is the last Annual General Meeting of the Company, as the Vesting Date has been fixed by the Minister of Fuel and Power for May 1st next, and the assets of your undertaking will then pass into the hands of the State.

I am sure that you would wish me to convey to the Chairman our kind thoughts and best wishes for the future; and also to express to him deep appreciation of his many and valued years of faithful stewardship. Mr. Cash has been a member of the Board since 1899 and Chairman since 1923. The success which the Company has achieved is largely due to his wide knowledge and sound judgment and great financial ability, and I think we are under a great debt of gratitude for what he has done in the past 50 years.

At this point I would like to suggest that we send a telegram from this meeting to Mr. Cash in the following terms: "On this the Golden Jubilee of your election to the Board and the Silver Jubilee of your Chairmanship, all the stockholders present at the annual general meeting to-day, together with your co-Directors and all employees of the Croydon Gas Company, send you good wishes and sincere thanks for the sound advice and guidance which you have always given to the Company during the past 50 years."

(Later in the meeting the Chairman announced that the following reply had been received from Mr. Cash: "I have just received the very kind telegram sent from the General Meeting of the Croydon Gas Company. I am quite overwhelmed by the generous and kind expressions it contains, and I ask you to express to the meeting my appreciation and gratitude").

The CHAIRMAN, continuing, said: I only propose to refer briefly to the last year, as this is an exceptional meeting and I think this an approprate time and place to review the progress of the Company over a space of years.

The accounts as you will observe reveal a satisfactory year's working; and after the payment of the dividends the carry forward is £130,857 compared with £111,864 for the previous year. Bearing in mind the difficulties which have faced the management I feel that the results are satisfactory.

Twenty-Five Years' Growth

I have had the privilege of serving on the Board for practically 25 years, and should like to refer to the growth of your undertaking during that period of time. In 1924 the total number of consumers was 57,415 and in 1948 the number had increased to 111,136 notwithstanding the set-back in expansion caused by the war.

In the year 1931 we took over the Oxted Gas Company and this substantially increased our area of supply, which now embraces 75 sq. miles. In order to cope with this vast expansion, it was necessary to increase our means of production and distribution, and, at the same time, provide additional service to our consumers, greatly increase our office facilities, and enlarge our welfare service for our employees, and I think it would be helpful if I dealt with these matters under separate heads.

Production

In 1924 the capacity of our works was 12.75 mill. cu.ft. per diem. A large scheme of extension and reconstruction was carried out in the years 1927/1946 involving a capital expenditure of over £1 mill. and as a result the capacity of the works was increased to 22.30 mill. cu.ft. per diem, revealing an increase of 75%. Further plant extensions have been planned, and contracts placed, for carbonizing and carburetted water gas plants with capacities of 3.25 mill. and 6 mill. cu. ft. per diem, respectively.

For some time we have assisted the East Surrey Gas Company with a bulk supply for their Godstone, Lingfield, and Tandridge area, and we have been asked to increase this and also to supply the gas required for the new town at Crawley. A large programme of further extensions is now in hand in order to meet these demands and the increasing use of gas in our own area of supply.

Distribution

In 1931 a new governor house was built at Whyteleafe, and in 1933 a new holder at Carshalton was completed, and tenders have been obtained for the construction of another holder at Whyteleafe. It is interesting to note that in 1924 we had 335 miles of mains whereas in 1948 that figure had risen to 630 miles.

Between 1926 and 1937 a series of trunk mains were laid and these have enabled us to supply our outlying districts (including the Oxted area), provide the bulk supply to the East Surrey Company, and give a full supply of gas to housing estates of the local authorities in our area of supply. In 1929 the Company acquired a large property in Purley Way in close proximity to the works, which is now known as William Cash Workshops, and this houses the District Stores Appliance repair Shops and Warehouse, Meter Testing Shop, Main District Garage for delivery vans, &c., as well as a Training and Instruction Centre. This property has proved to be a great asset, and was acquired at a very reasonable figure.

Service to Consumers

The Board has always realized the great importance of giving our consumers an efficient service and the foundations for this were well and truly laid by Mr. W. J. Sandeman when he was Distribution Engineer and later General Manager of the Company.

Showrooms have been built, or rebuilt, in convenient positions throughout our area and some idea of the service provided can be gained from the fact that in 1924 the number of consumers' orders dealt with was 95,080, whereas in 1938 (the last full trading year before the war) these had increased to 225,873.

As a result of the growth of the Company the office accommodation became hopelessly inadequate, and prior to the outbreak of war plans for our new head office were prepared, tenders obtained and accepted. The Board debated seriously as to the advisability of cancelling the contract on the outbreak of hostilities in 1939, but eventually decided to proceed with the building. I think this was a wise decision as we now have an exceptionally fine building which is planned to house the whole of our administrative staff.

If building operations had been postponed until after the war it would not have been possible to build for many years and the cost of the building, which amounted to approximately £120,000, would have been doubled or trebled.

During the period under review the whole of the internal organization of the office was changed, and the accounts side was mechanized at considerable expense, but this expenditure proved to be very remunerative, and in passing I might mention that it has now been completely written off. We are greatly indebted to my colleague, Mr. Wood, for the very satisfactory reorganization of the secretarial and accounting side of our undertaking which was carried out during the time when he was Secretary and Accountant to the Company.

Employees

I think we have been very fortunate that a spirit of good fellowship has prevailed as between the management and employees of the Company over the whole of the last 25 years. I think this is attributable to several causes. First, if difficulties did arise then they were dealt with at once and by direct contact between the chief officers and the employees. Secondly, the Works and Co-Partnership Committee, consisting of the Chairman and two Directors and other representatives of the management on the one side, and freely elected members of all sections of the employees on the other side, provided the opportunity for an open and free discussion of the various matters that arose from time to time. Thirdly, the provision of our Co-Partnership scheme and our Pension, Widows' and Orphans' Fund. As far as the latter is concerned, it is interesting to note that in 1924 the fund amounted to a little under £94,000, of which £45,000 was invested outside the Company, and in 1948 the fund had increased to over £1,070,000 of which over £1,067,000 was invested outside the Company. The fund is actuarially solvent, which I think can be said of only one other Gas Company Pension Fund in the country.

Some of our employees have expressed anxiety as to what is to happen to their fund—for it is part and parcel of our Co-Partnership Scheme—when the Company is taken over. I feel sure that they need have no misgivings on this point, as the Area Board will, I feel confident, take care to ensure that the rights of employees are perserved in very way.

Position of Stockholders

Your Directors have endeavoured to look after your interests to the best of their ability and except for the war and the war-time legislation, there is little doubt that the pre-war dividend of 7% on the sliding scale stock would still have been earned and paid. The matter now, however, passes out of our hands and in order to safeguard your interests—and as provided under the Gas Act—you will have to appoint a Stockholders' representative to-day.

I would, however, like to take this opportunity of thanking you on behalf of the Chairman and my colleagues for the confidence that you have bestowed upon us in the past.

I have attempted to give you a brief summary of the growth of your undertaking in the past 25 years, and I think you will agree with me that we are handing over a concern which is sound to the core and of which we may all be justly proud.

I think no good purpose would be served if I entered into any discussion of the general question of nationalization, and I will make no attempt to prejudge the outcome on our industry.

I hope and trust, however, that all officers and employees in our Company will serve the new authorities with the same loyalty as they have served the Company in the past and will sustain the good name that has been acquired by work of the highest quality over a long period of time.

To our General Manager, Mr. D. V. O'Meara, and the Principal Officers, including the Chief Engineer, Mr. J. M. Webber, the Secretary and Accountant, Mr. W. H. Haddleton, the Commercial Manager, Mr. W. A. Bishop, and the Distribution Engineer, Mr. P. Richbell, our sincere thanks are due not only in connexion with the past year's work, but also on account of the vital part that they played in the development of the undertaking over a much longer period of time, and their invaluable help in planning for the future, and I also want to place on record the Board's cordial appreciation of the loyal and efficient work of our employees as a whole.

There has been good team work, fostered very largely by the spirit of Co-Partnership and I can only hope that this mutual goodwill will continue in the new administration now shortly to take over the great British gas industry.

The Report and Accounts were unanimously adopted, as also was the following resolution, proposed by the DEPUTY CHAIRMAN and seconded by Mr. F. F. WOOD: "That Dividends at the following rates per annum for the half year ended Dec. 31, 1948: 4% on £150,000 Preference Stock, 5% on £644,590 Maximum Dividend Stock, and 6% on £807,560 Sliding Scale Stock, making with the interim dividends declared by the Directors and paid Sept. 1, 1948, dividends for the year at the respective rates of 4%, 5% and 5½%, all less income tax, be now declared and payable on Mar. 1, 1949, to all holders as entered on the Register of Proprietors on Jan. 22, 1949."

Mr. Harold Williams and Mr. F. F. Wood were re-elected Directors, and Lieut.-Colonel W. C. Smith, D.S.O., M.C., F.C.A., was re-appointed as Auditor.

The meeting terminated with a vote of thanks to the Chairman, Directors, and Staff. Mr. D. V. O'MEARA, General Manager, responding on behalf of the staff, said it would be their endeavour to maintain the high standard of service to the consumer, which was the keynote of their business, and which they as a Company had always provided in the past. He thanked the Chairman and the Board for the consideration which they had always given to their welfare and the help and advice which they had so readily given whenever approached. Vesting date would be in many ways a sad day for the employees because they would be parting from such good friends. They would, however, do their utmost to continue to give a first class service to the consumer.

The Annual Ordinary General Meeting was followed by a meeting of holders of securities of the Company in accordance with the Gas Act, 1948, and the Gas (Stockholders' Representative) Regulations, 1948, at which Mr. William Cash, Junior, M.A., F.C.A., was unanimously appointed stockholders' representative.

THE WANDSWORTH AND DISTRICT GAS COMPANY

THE Annual Ordinary General Meeting of The Wandsworth and District Gas Company was held at Wandsworth, on Mar. 1, Mr. FRANK H. JONES, M.I.C.E. (Chairman and Joint Managing Director), presiding.

The CHAIRMAN said: The Directors' report and statement of Accounts for the year ended Dec. 31 are presented. From the report it will be seen that the sale of gas for the year again constitutes a record for the Company, the total being 1.9% greater than was sold in 1947, which was in itself a record. The number of consumers has risen by nearly 4,000 to a total of approximately 224,700.

Finance

From the fixed and long term assets account it will be seen that capital expenditure of rather over £400,000 has been incurred during the year, while the sum for depreciation at a little in excess of £124,000 is slightly greater than was written off during the preceding year. The higher cost of coal, gas oil, wages, and in fact of all prices generally, which have had to be paid during the year, are reflected in the figures which appear in the revenue account. Indeed, the price of coal has risen by nearly three times the figure prevailing in 1938.

In the distribution section we have pursued the policy of writing down by depreciation our meters and appliances, but this year the total amount of the depreciation, of a sum approximately equivalent to that charged against the 1947 accounts, has all been placed under the heading of meters, since other appliances have been virtually written off.

The lower charge for rates and taxes has been brought about by a reduction in the assessments, but we have during the year effected certain renewals of office equipment, the cost of which appears under general charges, while the higher debit for superannuations, &c., comes about as a result of the consolidation of war bonuses for pension purposes. On the other side of the account we have increased income from the sale of gas and obtained a better yield from residuals.

It is pleasing to report that the contract entered into with the South Metropolitan Gas Company at the beginning of 1948 has resulted in improved revenue from both tar and benzole. Rents received, however, appear for the first time as a debit balance; the cost of maintaining various house properties has now reached a figure greater than the total of the rents received.

The balance carried to the credit of net revenue account is a little less than that for the preceding year when it was possible to make a provision of £50,000 towards the ultimate cost of repairs which have had to be deferred. The results are, however, satisfactory, bearing in mind the increased costs that have had to be met both for materials and wages.

Three special items will be found on the credit side in the net revenue account, two of them relating to war damage. Provision

had been made for the Company's contribution under the war damage scheme which was to form the subject of a special Act of Parliament, and now that the Bill has, in fact, been put before the House of Commons we have been able to obtain a reliable guide as to the liability which we shall incur for this purpose. Fortunately, this is appreciably less than had been set aside provisionally, and the difference has accordingly been taken back to the net revenue account. Similarly, agreement of the Company's claim for war damage sustained has shown that this will be in excess of the expenditure which has been charged to the suspense account, so leaving a sum which can be added to the carry forward.

The other item concerns the provision which we have made in past years towards the payment of future income tax, for, as you know, companies are normally assessed on the basis not of the profits of the actual year, but upon those which they earned in the preceding year.

On May 1 next, our undertaking will be vested under the Gas Act, 1948, in the South Eastern Gas Board, and will, therefore, for taxation purposes, be treated as a "discontinued business." In the circumstances, there can be no future income tax, and the provision has been brought back to the credit of net revenue account.

The balance which remains to be carried forward on this account at £524,194 is considerably in excess of that which would be permissible under the Company's Acts of Parliament, but the Directors have assumed that in effect the Gas Charges Order, 1948, and the Gas Act render such restriction inoperative, and have decided to leave the balance on the net revenue account so that the Area Board may, in due course, deal with it as they deem fit. The foregoing is but a summary, and fuller examination of the balance sheet indicates, generally, a strong and satisfactory position.

Works

In my comments last year I indicated that the extensive programme for the reconditioning of the plant would have to be continued in order that we might make good the wear and tear which had accumulated during the war years. Heavy expenditure on this repair and reconditioning of the manufacturing plant and buildings is indicated by the item shown under the section headed "Manufacture of Gas," but I am glad to tell the proprietors we have now made good the arrears of work brought about by the war, and our plant and machinery is in good condition. During the year an additional carburetted water gas plant of 4 mill. cu.ft. per day capacity was put into commission.

The Company's fleet of six ships has been maintained to our usual high standard. The value of these ships can be measured in the fact that during the year 1948 they delivered some 533,000 tons of coal to Wandsworth. Although the quality of the coals received leaves much to be desired, our stocks have been sufficient to meet the demands for gas making.

Although it is still impossible for the Company to obtain sufficient supplies of appliances to meet all the demands of the consumers, we have, during the past year, been able to complete 125,000 orders against 120,000 in the preceding year. The lack of adequate supplies of apparatus means that the Company is unable to make much progress with the modernization of equipment in existing homes, but, as far as possible, replacement parts have been obtained to meet normal wear and tear.

Showrooms

So far as circumstances have permitted, decorations and modifications to existing showrooms have been carried out. Over 720,000 callers visited the showrooms last year, compared with 703,000 in the preceding year. Considerable success has attended the series of cookery instruction classes held at various showrooms during 1948.

The development in sales of gas for industrial, commercial and large-scale heating purposes has been well maintained. During the past year there has been an increase in consumption of 11% over the sales in 1947, and it is interesting to record that this exceeds considerably the maximum wartime usage when factories were in full production for the war effort.

While no work of major importance has taken place in the distribution department during the year, plans have been completed for the erection of new gasholders and the laying of a 24 in. high pressure main. This scheme is intended primarily to meet the expected future demand for gas in the Mid-Western section of our present area of supply. At the same time, it will also provide much needed additional gas storage capacity, and thus assist existing distribution problems throughout the district. Some four miles of new mains have been laid to provide gas to new housing schemes as compared with eight in the previous year.

Nationalization

As this is undoubtedly the last occasion on which I shall have the pleasure to address an Annual General Meeting of the proprietors of The Wandsworth and District Gas Company before we pass to national ownership, I feel it would be the desire of the proprietors that I should place on record how proud we are of the 114 years of unbroken service to the consumers. We shall hand over to the South-Eastern Area Gas Board an undertaking not only financially sound, but well-equipped and planned to meet the requirements of post-war conditions.

Finally, on behalf of the proprietors, I must take this opportunity of conveying to all employees of the Company our thanks for the loyal and efficient services they have rendered.

The report was adopted.

SOUTHAMPTON GASLIGHT AND COKE COMPANY

The Annual Meeting of the stockholders of the Southampton Gaslight and Coke Company was held at the Company's offices on Feb. 24, Brigadier E. M. Jack, C.B., C.M.G., D.S.O., D.L., Chairman of Directors, presiding.

The CHAIRMAN, in the course of his statement to the proprietors, said: 'You have placed a trust in the Directors for many years during which time an efficient and financially sound undertaking has been built up in spite of two world wars. It is, therefore, with great reluctance that we witness the handing over of such a Company to nationalisation. During its life of 100 years the keynote of the Company's policy has been service to its consumers. Except when the manufacturing plant was put out of action and gas mains were damaged by enemy bombing, gas has never failed the public, notwithstanding the many difficulties which have been experienced. Maximum dividends have been paid throughout the Company's history with one exception in 1940, when the dividend on the Ordinary stock was slightly reduced owing to lower profits following the bombing.'

The Company had been honoured by the appointment of the Deputy Chairman and Managing Director, Mr. S. E. Whitehead, as Deputy Chairman of the Southern Gas Board. It was most satisfying to know that the wealth of knowledge which Mr. Whitehead had gained over many years' service with this and other Companies would not be lost to the gas industry, and he placed on record their appreciation of all his work for the Company in the past 19 years. Sales of gas during that period had more than doubled.

Sale of gas at 14,677,359 therms was a record and shows an increase of 3.55% over the figure for 1947. The revenue had accordingly risen by £84,975. Higher sales of coke and breeze were recorded, the tonnage sold to customers having increased by nearly 23%. Here again the sales were a record in the history of the Company, but in spite of these records the total increase in revenue of £163,111 was insufficient to meet the increase in expenditure of £194,869. The latter increase was due chiefly to the higher price of coal and the increased rates of pay to employees. The average cost of coal into works increased during the year by 7s. per ton, while the wages bill rose by nearly £30,000.

Owing to increases in the cost of coal, further advances in wages and salaries, and the withdrawal of the oil subsidy, your Directors were reluctantly compelled to revise the scale of charges for gas and permission having been obtained from the Minister of Fuel and Power, the price was increased by 2d. per therm as from the Michaelmas meter readings.

The Centenary year of 1948 had been one of record sales, and the Directors would hand over to the Government a flourishing Company with reserves and provisions amounting to well over a quarter of a million pounds. The compensation which Stockholders would receive for their holdings in the Company would be a matter for negotiation with the Ministry of Fuel and Power, and it would be necessary for holders of securities, *i.e.*, preference ordinary, and debenture stockholders, to appoint a Stockholders' Representative to act for them.

Mr. S. E. WHITEHEAD, who seconded that adoption of the report and accounts, expressed his pleasure that Mr. T. E. D. Mason, the Company's Secretary and Accountant, had been appointed Secretary of the Southern Gas Board. He added that he thought it would be good news to the local consumers that the headquarters of the Area would be in Southampton, and that name of the undertaking would be perpetuated in the new set-up —the 'Southampton and District Gas Undertaking.'

Mr. Whitehead also mentioned that Mr. G. Neil (the Company's Engineer) would be Engineer and Manager of the Southampton and District Gas Undertaking, and that Mr. Edwards would remain with him in the sales and fittings section, which, he said, amply justified the Chairman's remark that the Southampton gas service would continue.

The staff and other employees, he added, need have no fear as to their status under the new set-up. So far as they were concerned, he thought things would go on very much as before—possibly conditions might be improved.

A resolution was approved declaring the following final dividends for the six months ended Dec. 31, 1948: at standard rates on Preference stocks and 2½% on the Ordinary stock, less tax making the dividend for the year 1948 at the rate of 5% on the Ordinary stock.

GAS STOCKS AND SHARES

There was a further diminution in trading in stock markets last week, the total markings for the period ended Thursday evening being 29,905, compared with 33,334 for the previous week. Monday's total of 7,043 was the lowest for any Monday since the beginning of January, and Thursday's 5,466 was the lowest this year, the scarcity of business being attributed to the anticipated result of the Hammersmith by-election, in which the Government candidate was successful. Gilt-edged securities were slightly harder, but industrials were mostly quiet and dull, though some of the leading shares were in demand for small investment. Collieries continued to improve, but shares in coal distributing companies were marked down.

Of the 504 companies consulted by the Federation of British Industries on the policy of dividend limitation, 438 had replied by Wednesday; of these, 409 had agreed either to give an undertaking in the same terms as last year or had declared themselves willing to continue for the next 12 months a policy of moderation and restraint.

The week's total of 273 bargains in gas stocks compared with a recent average of 263, and price changes were very slight. The week's rises and falls were as follows:

OFFICIAL LIST

Gas Light & Coke, 3½ p.c. max....	78½ — 81⅛	+	½
Imperial Continental, cap. ...	107 —112	—	1
Northampton, cons. (xd Feb. 16)	104 —109	+	1
South Eastern Gas Corp., 4½ p.c. red. cum. pref.	21/ — 22/	+	3d.
Tottenham, ord.	117 —122	+	1

Quotations on the London Stock Exchange

When last ex-Dividend	Dividends Interest. Total for Year %	NAME.	Quotations Feb. 24
Sept. 15	4	Alliance & Dublin Cons. Ord.	21/6—23/6
Nov. 3	5	Asscd. Gas & Water U'd'tgs Ord.	22/ —23/
,,	6	Do. Deferred	22/9—23/9
Sept. 1	4½	Do. 4½ p.c. Red. Cum. Pref.... ...	20/ —21/
,,	4	Do. 4 p.c. Red. Cum. Pref.	19/ —20/
,,	4	Do. 4 p.c. Irred. Cum. Pref.... ...	18/3—19/3
Aug. 18	7	Barnet Ord. 7 p.c. max.	152—157
Aug. 16	5	Bath Cons. Ord. 5 p.c. basic ...	104—109
Feb. 16	6½	Bombay, Ltd. Stock	34/- -39/-xd
Aug. 18	8½	Bournemouth Std. 5 p.c. sliding scale ...	163—168
,,	7	Do. 7 p.c. max. div.	152—157
,,	4	Do. 4 p.c. Pref.	96—101
,,	6	Do. 6 p.c. Pref.	124—129
Feb. ,, 2	3½	Do. 3½ p.c. Red. Deb.	95—100
Dec. 15	4	Do. Perp. 4 p.c. Deb.	96—101
Aug. 18	5·35	Brighton, &c., 5 p.c. Std. Cons.	104—109
,,	6·3	Do. 6 p.c. Std. Cons.	113—118
Dec. ,, 15	5	Do 5 p.c. Perp. Deb.	118—123
Aug. 4	5	Bristol, Gen. Cap. 5 p.c. max.	112—117
Dec. 15	4	Do. 4 p.c. New Deb. Red.	94— 99
Sept. 29	7½	Brit. Gas Light Ord.	127—132
Jan. 5	5½	Do. 5½ p.c. 'B' Cum. Pref.	108—113
Dec. 15	4	Do. 4 p.c. Red. Deb.	93— 98
Feb. 16	10	Cambridge U. & T. Orig. 10 p.c. Cons. ...	190—200xd
,,	5	Do. 5 p.c. Cons. 'C'	95—100xd
,,	7	Do. 7 p.c. Cons. 'B.'	135—140xd
Nov. 3	4½	Cape Town, Ltd., 4½ p.c. Cu. Pf.	17/ —19/
Feb. 16	7½	Cardiff Con. Ord.	118—123xd
Mar. 10	5	Cheltenham, 5 p.c. basic Cons. Ord. ...	102—107
Dec. 15	4	Do. 4 p.c. Perp. Deb.	94— 99
Feb. 2	5½	Chester United Ord.	106—111
Nov. 3	7	Colombo Ltd., Ord.	27/ —32/
,,	7	Do. 7 p.c. Pref.	22/ —24/
Sept. 29	5	Colonial Gas Assn. Ltd. Ord.	16/ —18/
,,	8	Do. 8 p.c. Pref....	24/6—26 6
Feb. ,, 2	5	Commercial Ord.	91— 96
Dec. 1	3	Do. 3 p.c. Deb. Perp.... ...	72— 77
Feb. 16	5	Do. 5 p.c. Irred. Deb.... ...	107—112xd
,,	6	Croydon sliding scale	120—125xd
,,	5	Do. max. div.	102—107xd
,,	4	Do. 4 p.c. Irred. Pref.	95—100xd
Dec. 15	4	Do. 4 p.c. Perp. Deb.... ...	94— 99
,,	5	Do. 5 p.c. Perp. Deb.... ...	119—124
Feb. 16	8	Derby Cons. Ord.	134—135xd
Dec. 15	4	Do. 4 p.c. Red. Deb.	92— 97
Aug. 4	5	East Hull Ord.	96—101
Feb. 16	5	East Surrey 'B,' 5 p.c.	98—103xd
,,	6	Do. 6 p.c. Cum. Pref.... ...	116—121xd
Dec. ,, 15	5	Do. 5 p.c. Irred. Deb.	117—122
Feb. 16	6⅝	East Wight Cons. Ord.	107—112xd
Aug. 18	5	Eastbourne 'A'	101—106
,,	3½	Do. 'B'	98—103
Nov. ,, 17	5	Gas Consolidation Ord. 'A'	20/6—22/6
,,	5	Do. Ord. 'B'	20/6—22/6
,,	4	Do. 4 p.c. Red. Cum. Pref.	17/6—19/6
Feb. 2	5	Gas Light & Coke Ord.	22/9—23/9
,,	3½	Do. 3½ p.c. max.	78½— 81½
,,	4	Do. 4 p.c. Con. Pref.	98½—101½
Jan. 5	3½	Do. 3½ p.c. Red. Pref....	97— 100
Dec. 1	3	Do. 3 p.c. Con. Deb.	86— 89
,,	5	Do. 5 p.c. Deb.	104—107
,,	4½	Do. 4½ p.c. Red. Deb.	104—107
Sept. 1	3½	Do. 3½ p.c. Red. Deb....	94— 99
Aug. 4	5	Gloucester Cons. Ord.	94— 99
Feb. 16	4	Great Yarmouth (8½ p.c. max)	131—141xd
,,	7½	Guildford Cons. Ord.	132—137xd
Aug. 18	5	Hampton C't, 5 p.c. Cons. Ord.	95—100
Feb. 16	5	Hartlepool G. & W. 5 p.c. Ord.	93— 98xd
Oct. 13	6	Hastings & St L. (5 p.c. Std.)	100—105
,,	5	Do. (3½ p.c. Std.)	87— 92
June 16	7½	Holyhead & N. Wales Ord.	20/6—22/6
Sept. 15	5	Hornsey 3½ p.c. Std.	89— 94
,,	6⅛	Do. 5 p.c. Std	110—115
May 19	8½	Imperial Continental Cap.	107—112
Sept. 1	7⅞	Lea Bridge Co., Cons. Ord....	134—139
Feb. 2	5½	Liverpool 5 p.c. Ord.	120—125
Sept. 15	7⅞	Luton Cons. Ord. 'A'	152—157
,,	6½	Do. Ord. 'B'	115—120
Jan. 5	7	Malta & Med'n., ord.	160—170
,,	7	Do. 7 p.c. 1st Pref.	110—115
,,	7½	Do. 7½ p.c. 2nd. Pref....	110—115
Feb. 16	5⅝	M.S. Utility 'A' Cons.	101—106xd
,,	3⅜	Do. 'B' Cons.	70— 75xd
,,	5	Do. 'C' Cons.	102—107xd
,,	4	Do. 4 p.c. Cons. Pref.	96 —101xd
May 19	2	Montevideo, Ltd. Ord.	90—100
Feb. 2	5⅝	Newcastle and Gateshead Ord.	24/9—25/9
Jan. 5	3½	Do. 3½ p.c. Perp. Deb.	93— 98
Aug. 4	8½	Newport (Mon.) Cons.	98—103
Dec. 15	5	Do. 5 p.c. Perp. Deb....	110—115
Sept. 29	6½	North Middlesex 6 p.c.	123—128
,,	5	Do. 5 p.c. Pref.	105—110
Feb. ,, 16	5	Northampton Cons.	104—109xd
Feb. 2	9¾	Oxford, Cons. Ord.	202—212
Dec. 1	5⅝	Plymouth & Stonehouse Ord	111—116
,,	8½	Do. Addl.	14½— 15½
,,	7½	Do. New	13½— 14½
Sept. 15	5	Do. 5 p.c. Deb. Perp....	118—123
Feb. 16	7½	Portsmouth & Gosport Cons.	146—151xd
,,	5	Do. 5 p.c. max.	101—106xd
,,	10	Preston 'A'	178—183xd
,,	7	Do. 'B'	125—130xd
June 24 46	2	Primitiva Holdings, Ltd. Ord.	9/ —11/
Dec. 15	6	Do. 6½ p.c. Red. Cum. Pref.	97—102
Feb. 16	5	Reading, 5 p.c. max.	97—102xd
,,	3¾	Do. 3¾ p.c. Red. (Non-Cum.) Pref....	96— 101xd
Dec. 15	4	Do. 4 p.c. Perp. Deb....	91— 96
Feb. 16	5	Romford, Ord.	110—115xd
Sept. 15	7½	Severn Val. Ltd. Ord.	22/6—23/6
,,	4½	Do. 4½ p.c. Cum. Pref.	20/6—21/6
Sept. 1	6½	Sheffield Cons....	143—148
Jan. 5	4	Do. 4 p.c. Red. Deb.	93— 98
Sept. 1	6	South East'n Gas Ltd. Ord.	22/ —23/
,,	4½	Do. 4½ p.c. Red. Cum. Pref.	21/ —22/
,,	4	Do. 4 p.c. Irred. Cum. Pref.	19/—20/-
Feb. 16	5	South Metropolitan Ord.	102 —107xd
,,	6	Do. 6 p.c. Irred. Pref....	123 —128xd
,,	4	Do. 4 p.c. Irred. Pref.	97 —102xd
Dec. 15	3	Do. 3 p.c. Perp. Deb.	82 — 87
Jan. 5	5	Do. 5 p.c. Red. Deb.	97 —102
Feb. 16	5	South Suburban Ord. 5 p.c.	112 —118xd
,,	5	Do. 5 p.c. Perp. Pref....	108 —113xd
,,	4	Do. 4 p.c. Perp. Pref....	93 — 98xd
,,	3½	Do. 3½ p.c. Red. Pref....	90 — 95xd
Dec. 15	5	Do. 5 p.c. Perp. Deb....	118 — 123
Sept. 15	5½	South West. G. & W. Ltd. Ord.	19/—21/-
Feb. 2	5	Southampton Ord.	102 —107
,,	6	Sunderland Ord.	112 —117
,,	4½	Swansea Ord.	82 — 87
,,	5½	Do. 5½ p.c. Red. Pref.	100 —105
Sept. 15	7	Swindon Cons. Ord.	114 —119
Aug. 4	5	Tottenham Ord.	117 —122
,,	5	Do. 5 p.c. Pref.	108 —113
,,	5½	Do. 5½ p.c. Irred. Pref.	120 —125
Dec. 15	4	Do. 4 p.c. Perp. Deb....	95 —100
Oct. 13	6·85	Tunbridge Wells, 4 p.c. Sliding	122 —127
,,	7	U. Kingdom Ltd. Ord.	22/9—23/9
Nov. 17	4½	Do. 4½ p.c. 1st Cum. Pref.	22/3—23/3
,,	4	Do. 4 p.c. 1st Red. Cum. Pref.... ...	19/ —20/
Jan. 5	4½	Do. 4½ p.c. 2nd Non-Cum. Pf.... ...	19/ —20/
Sept. 15	3½	Do. 3½ p.c. Red. Deb....	93 — 98
Aug. 18	6⅝	Uxbridge, &c., 5 p.c. Cap.	120 —125
,,	5	Do. 5 p.c. Pref.	107 —112
Dec. 1	5	Do. 5 p.c. Perp. Deb.	118 —123
Feb. 16	5	Wandsworth Cons.	118 —123xd
,,	4	Do. 4 p.c. Pref....	97 —102xd
Dec. 15	5	Do. 5 p.c. Irred. Deb....	121 —126
,,	4	Do. 4 p.c. Irred. Deb....	94 — 99
Feb. ,, 2	5	Watford & St. Albans Ord.	117 —122
,,	5	Do. 5 p.c. Pref.	107 —112
,,	5½	Do. 5½ p.c. Pref.	120 —125
Feb. 16	5	Weymouth Ord. (5 p.c. Basic)	92 — 97xd
,,	10½	Woking District "A" Ord....	180 —190xd
,,	7.35	Do. "B" Ord....	127 —132xd
,,	7½	Wolverhampton Cons. Ord.	119 —124xd
Sept. 15	5	York Cons. Ord.	98 —103

GAS UNDERTAKINGS' RESULTS

Plymouth & Stonehouse Gas Light & Coke Company

The Directors have decided to pay on April 1 interest at standard rates on the 3%, 3½%, 4% and 5% Debenture Stock for the half-year to Mar. 31.

Romford Gas Company

At a recent meeting of the Board it was decided to recommend, subject to audit, a final dividend on Ordinary Stock, 2½% actual, less tax, making 5% for the year ended Dec. 31. This dividend will be payable on Mar. 7.

South Staffordshire Mond Gas Company

Fuel gasified during the year was 8% more than in 1947 and the cost of fuel gasified was 26.2% more. Gas distributed increased by 11.6%. Gross profit was £51,243, and net profit £10,140. An Ordinary dividend of 6%, less tax, has been declared, leaving a balance of £23,839 to to be carried forward.

Metropolitan Gas Company (Melbourne)

As already briefly announced, the directors have decided not to declare an interim dividend for the year ending June 30, 1949. During the half-year to Dec. 31 costs continued to rise. Compared with the same period of 1947 the price of coal was higher by 14s. 11.25d. per ton and the quality, generally, inferior, while the basic wage was 9s. 6d. per week greater. These two items accounted for an increase in costs of approximately £215,000 for the half-year. During the whole of the period coal stocks were more or less at starvation level and on occasions reserves were down to a few hours' requirements, rendering gas restrictions necessary for nearly seven weeks in July and August and again for short periods in November, with the result that in comparison with the December half-year of 1947 sales of gas were lower by 2.25%. There has been a serious time lag in obtaining recoupment of advanced costs by way of price increases. An application is now before the Prices De-Control Commissioner for increased prices to meet the advanced costs and it is hoped that it will be possible to declare a reasonable dividend when the full year's figures are available after June 30.

Airdrie Gas Department

Gas distributed for the year ended May 15, 1948, reached the new record of 325,421,300 cu.ft., showing an increase of 18,296,900 cu.ft., or 5.96%. New vertical retorts brought into use in November accounted for an increase of coal carbonized, but decreased the amount of coke and oil gasified and the volume of C.W.G. Capital schemes approved by the Ministry of Fuel and Power, to be started or completed, are as follows: Workmen's messroom, wagon-tipper, an additional railway siding, second vertical retort extension, water gas waste-heat boiler, electro-detarrer, static ammonia washer, station governor, booster and compressor, high pressure trunk main, and district governors. A new holder has been approved but a site not yet found. Steeply rising costs have been partly offset by a higher standard of commercial and technical efficiency, otherwise there would have been no surplus on the year's working. Much increase in efficiency has been negatived by poor quality coal. Total expenditure shows an increase of £21,494 over the year. The final result is a surplus of £2,243, making a credit balance of £6,570 to be carried forward to next year's account.

PUBLICATIONS RECEIVED

Technical information on testing temperatures in coal dumps is included in the January issue of the *F.P.A. Journal*, the publication of the Fire Protection Association. 84, Queen Street, London, E.C.4. The article indicates how an armoured thermometer and piping suitable for lowering into coal stacks may be made.

* * *

The proceedings of the annual conference of the National Smoke Abatement Society, which was held at Cheltenham from Sept. 29 to Oct. 1 last year and was reported at length in the "GAS JOURNAL" of Oct. 6, have now been published. The Report is available from the Society's headquarters at Chandos House, Buckingham Gate, London, S.W.1, price 3s. 6d.

* * *

The British Gas Council has issued *Cooking in the New Homes*, a booklet which illustrates the installation of gas cookers in post-war houses. The advantages of gas cooking to the housewife, the local authority, and the nation are concisely described, and a section is devoted to details of the appearance and performance of the modern gas cooker. There is also a representative selection of photographs showing typical installations in kitchens of local authorities' houses.

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The Tea Bureau has published *Equipment for Tea*, which has been designed with the co-operation of the leading manufacturers as a guide to the range of boilers, cafe sets, trolleys, and other equipment. The book has an introduction by Mr. J. R. W. Alexander, General Manager of the British Gas Council, is admirably illustrated, and is produced in loose-leaf form for the insertion of details of new equipment. Copies are available from the Tea Bureau, 22, Regent Street, S.W.1. Price 7s. 6d. (8s. 4d. including postage).

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The Sheffield and District Gas Company has issued a booklet on the reduction of gas output by voluntary rationing which explains its policy regarding gas cuts. It gives diagrams and statistics to show how peak loads occur, explains the particular problems involved in planning the control of output, and tells of the arrangements made for cuts on a quantitative rather than a percentage basis. It was found possible to reduce the total gas sent out by as much as 50% of the entire output at very short notice without the need for pressure reductions

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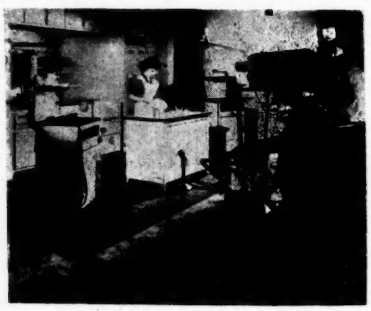
Management Through Leadership, published by the Institute of Industrial Administration (Sheffield Centre) at 2s. 6d., contains the text of seven lectures on principles of management presented at Sheffield earlier in 1948. Its distinguished contributors are Sir Frederick Bain, President of the Federation of British Industries, Lt.-Col. L. Urwick, Chairman, Urwick, Orr & Partners, Ltd., Sir Charles A. Mander, Managing Director, Mander Bros., Ltd., General Sir William Slim, now C.I.G.S., Sir Charles Bartlett, Managing Director, Vauxhall Motors, Ltd., Sir George Chester, T.U.C. General Council, Sir Charles Renold, Chairman of the British Institute of Management, Sir Harold West, Chairman of the Sheffield Centre of the Institute of Industrial Administration, and Mr. Leo Russell, Director, British Institute of Management. The book also reports the discussions which followed the lectures and is illustrated with portraits of the contributors and with photographs taken during the meetings.

The Instrument Manual, published by United Trade Press, Ltd., 24, Bride Lane, E.C.4 (price 70s.), is a detailed work which surveys the great range of instruments in general industrial use. It provides in a convenient form general information of value to all concerned with industrial instruments, both manufacturers and users of devices to facilitate observation, make measurements, record data, and manually or automatically control processes. Newer apparatus and techniques are covered in particular detail, and a bibliography has been included which gives prominence to the work of the last ten years, which has not received the normal degree of publicity on account of war-time secrecy and printing restrictions. Names of suppliers, a complete directory of manufacturers and interested organizations, and a list of periodicals which deal with current instrumentation problems are also given. The authors of the various sections of the manual have brought to bear an intimate practical knowledge of their respective branches of industry and the type of information which is required by users of instruments.

Television at Manchester

The British Broadcasting Corporation is holding a series of television exhibitions in a number of cities. The exhibitions are run in conjunction with the Faraday Lectures being held in these towns. At Manchester the exhibition was held in the Showrooms of the Gas Department and was opened by the Lord Mayor, Alderman Miss Mary Kingsmill Jones, on Feb. 9.



A member of the Home Service Section being televised as she gave a cookery demonstration.

Whereas in other towns the television shows have been limited to televising the faces of visitors to the exhibition, at Manchester rather more ambitious demonstrations were carried out in addition. Working in close co-operation with the staff of the Gas Department, the B.B.C. engineers televised a number of cookery demonstrations, lectures, and displays. The public were able to see the actual performers being photographed by the television cameras in the demonstration theatre and also the reproduction of both picture and sound on various television sets throughout the showrooms.

Performances televised included cookery demonstrations by Miss J. Webb and Miss E. Midani, short talks by Mr. W. F. Howell and Mr. L. Rebbitt on industrial and domestic applications of gas, and demonstrations of the operation of a gas meter, &c.

Reproduction was excellent and the exhibition and demonstrations were seen by a large number of enthusiastic visitors.